ITEMS OF INTEREST.

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Hints from the Profession.

More About Galvano-Plastic Crowns.

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MANY who have read Dr. Diehl's excellent article on Galvano-plastic Crowns would, no doubt, like to try the experiment if they did not lack knowledge of the electro-plating process. To many persons, the process of electro-plating appears a very mysterious and costly art. In reality, it is one of the simplest of all processes; and any one who has any fondness for interesting experiments, can, with a little ingenuity, and very small outlay, succeed in producing beautiful work. By this process, crowns can be produced true to nature in every respect. Besides this, the electro-process will be found very useful in many other kinds of laboratory work. But some one will say these things are expensive, and out of the reach of many who would like to try the experiment; such, however, is not the case. A small Daniell or Smee battery, large enough for the work, can be bought for from one dollar and fifty cents to two dollars, which includes jar for solution, connecting rods, battery wires, etc. Instead of casting the crown in fusible metal as he does, I would prefer to use a preparation of best wax, mixed with one-twentieth its weight of flake white. Put the wax into an earthen dish, over a slow fire, taking care that the heat is just sufficient to melt the wax. When quite liquid put in the flake white, and stir thoroughly with a glass rod; when fully mixed, pour out on a clean plate, and when cool, chop it in small pieces and re-melt it; re-melt the mixture once more, then it is ready for use. Next select a natural tooth or porcelain crown, the shape and size of the one you wish to make, oil it lightly, and make from it a two-piece plaster mold. When the mold is sufficiently dry, oil the inside lightly with sweet oil, taking care that the oil penetrates all parts of the mold. Place the two parts together and wind a piece of wire around them to hold them together, leaving it long enough to serve as a handle. Having melted enough wax for the patterns, heat the mold over a gas or alcohol flame until it is just warm enough to prevent the wax from being suddenly chilled when poured into it; but it must not be hot enough to dissipate the coating of oil with which it has been covered. Hold the mold in the left hand slightly tipt, that the melted wax may flow over the surface evenly and gradually.

It is a good plan to pour at night and let stand until morning. When solid, separate the mold and remove the pattern. The tooth pattern should now be fitted into the space furnished by the bite. This work should be carefully done with a wax spatula (or any other instrument) by scraping and smoothing with the warm spatula. In fitting for length, leave the pattern as much longer than the bite, as you may wish to have it go down on the root. To fit for root measurement, set the pattern on the prepared root and trim to exactly the *size* and *shape* of the root. The crown itself must be enough smaller than the space it is to occupy, to allow for the thickness of the gold crown, for it must be remembered that the new crown will be deposited on the outside of the pattern tooth. Nothing now remains but to connect the pattern with the battery to see the latter in action. Supposing you are using a single-cell Daniell. Pour the sulphate of copper solution into the outer jar until it

reaches within an inch of the top; place the porous cell in it, pour the acid solution into the latter, being careful the two solutions are level with each other. Next, slightly warm the negative wire—which is the one leading from the zinc of the battery—and press it into the neck of the tooth pattern, being careful not to let it prick through to the masticating surface. When cool, make the electrical connections between the wire and pattern continuous by black leading the point of junction thoroughly. Bending the wire in this shape ∩, so that the tooth pattern will come opposite the middle part of the zinc battery plate, and as near to it as possible. Immerse the zinc in the porous tube, and, if necessary, bring the pattern nearer by bending the ∩ wire. A little muslin bag of crystals of sulphate of copper should be suspended in the copper solution. The deposition does not commence at once; when it does, it goes on continually as long as any is generated. The pattern may be lifted out at any time and examined, as long as it is not touched with the fingers. I would advise anyone buying a new battery to get the Smee, as it is convenient, cleanly, and better for general purposes, and the battery power can be increased or diminished as desired for different kinds of work. To operate the Smee, the sulphate of copper solution is put in a separate glass jar. The battery is charged with dilute sulphuric acid, the same as for the Daniell. Be careful that the screw posts, wires, and rods that come in contact, are kept clean and bright, or the battery current will be greatly enfeebled. Suspend the pattern from one of the rods, and connect the wire from the battery zinc with it. The wire from the platinized silver is connected to the other rod, and a piece of copper, twice the size of the article to be plated, must be suspended from this rod. The copper plate and pattern should be hung in the copper solution in a position exactly facing each other, and about one inch apart. It is not necessary to hang the bag of copper crystals in the solution as with the Daniell, for in this battery the copper plate or anode supplies its place. When the copper is thick enough, remove from the bath, and clean *thoroughly* by washing it in clean soft water. The pattern is now ready for the gold deposit. Exchange the jar of copper solution for one of gold; remove the copper anode and put in its place one of gold, the same size. It will take from twelve to fifteen hours; the time will depend on how well the battery works, and the thickness of the crown; but as it only requires occasional attention, the time is of little consequence. When the gold is thick enough, remove from the bath, wash, buff, and polish. When finished, hold the crown in hot water until the wax pattern melts and runs out of the gold shell; the crown is ready to fit and mount.

Battery Solution. The acid solution for exciting the zinc is made by mixing one part sulphuric acid with twelve of water, care being taken to add the water last, and pour it in very slowly, otherwise so much heat would be generated that the mixture would boil over and spatter the hands and clothes.

Copper Solution. Pour a pint of boiling water on a pound of sulphate of copper; the mixture must be well stirred with a glass rod, in order to dissolve as much as possible of the salt. When perfectly cold, pour off the blue liquid, and add to it one-fourth its bulk of the dilute sulphuric acid which had been prepared for the battery. The latter is added to increase the power of the solution for conducting electrical currents, as it is a better conductor than either the water or copper. It will be found much cheaper to buy the gold solution of some dealer in electro-platers' supplies, as it is difficult to make, and expensive to spoil. In a future article I will give instructions for silver and nickel-plating.

Rhamnus Catharticus as a Remedy for Toothache (*Nouv. Remed.*).—Gretschinsky has found a decoction of the bark of *Rhamnus catharticus* gives complete cessation of the pain when introduced into a carious cavity on a bit of cotton. He directs ten parts of the bark to be boiled in a quantity of water which, after standing, will leave twenty parts of liquid, to which one part of alcohol is to be added.—*Ther. Analyst.*

A Street Car Study.

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THE street car, on long trips, is a good place to study human nature in general and human physiognomy in particular. So one afternoon on my way to the lecture-room, I discovered in front of me four ladies, all victims of dental malpractice.

The first, a lady of about twenty-five, regular features, fair complexion, had lost all her upper teeth, but fortunately had retained her lower ones, which we all so well know simplifies the *making* as well as the *bearing* of an artificial denture. The appearance of her mouth, however, showed a lack; it looked as tho the upper teeth had not been replaced till she opened her mouth, when there could just be seen a set of short, narrow, white teeth, giving the impression that she had never shed her "baby teeth." This is a type of artificial teeth very often met; they are oftener too short than too long, and as to width it would be a blessing to the race if our teeth manufacturers would stop making *deciduous* artificial teeth!

The next was a lady of fifty or more, tall and angular, with high cheek bones and prominent lower jaw. As is unusual in such conditions there was a most remarkable fullness of the upper lip, with unusual depression in the region of the cuspids. It required but little movement of the upper lip to discover the cause of the peculiar expression. The dentist had attempted to improve on nature by causing the upper teeth to close outside the lower (which always in this class of cases close inside), and to bring them forward sufficiently it was necessary to make a great prominence of gum, together with the fact that the closure was too short, carrying the lower teeth too high and of necessity the jaw *forward* more than was necessary. To add to the deformity, here again were short, narrow, white teeth of an entirely improper type for such a mouth.

The next was a well-built woman of middle age, with square features, short upper lip, and prominent upper jaw—a class of cases no dentist likes to deal with, for they are the most difficult of any for which to make satisfactory dentures. In this case gum sections had been used (cases where they are entirely inadmissable). There was no room for artificial gum, or at least only what can be secured by the continuous-gum process. The teeth also should be set under the margin of the process, as they cannot be with gum teeth. The teeth for this case should have been short, wide, and yellow to match the lower natural ones, but, like the previous cases, were narrow and white. When the lips were closed there was a prominent ridge across the entire lip, and corresponding depression above, giving her the mouth of a baboon. If such a person could not afford continuous gum work, there should be used plain teeth, set against the margin of process, and no gum nor even plate over the outside.

The fourth was a lady of sixty, with nervous temperament. Her teeth had been extracted many years, but to all appearances a new set had been recently inserted, —gum sections, but teeth not proper to this type of temperament. Instead of the almond-shaped tooth, of a delicate bluish grey type, with yellow well blended from the neck, they were short, and too wide in proportion to length; and, instead of a somewhat prominent position of central with receding lateral cuspids and bicuspids, they were arranged in the horse-shoe form, with bicuspids more prominent than the cuspids, giving a broad expression to the mouth, hightened by the whiteness of the teeth.

Don't imagine that these were isolated cases. O, no; the "air is full of them." The streets, cars, stores, hotels, private circles, everywhere, they are to be found.

Nor imagine they are only the product of the "two-for-a-nickle shops,"—the so-called "dental colleges," which are in no sense colleges, but shops where "the work is all done by 'clinical professors;'" neither at the "dental infirmaries," presided over by "President ——," and where, like the aforesaid "dental college," "no charge is made except for material,"—the most remarkable *charitable*

institutions in the world. No, not altogether in these concerns are these results produced, but some are from "first-class" offices, where good prices are paid, but the same machine-made dentures are made to disfigure the human face divine.

One discouraging feature of the whole business is in the fact that so many of the victims are unaware of the peculiar expression of the mouth their dentist has given them. They gave only $5 or $10 for the set, and are satisfied.

There are some facts to be considered in connection with this subject, viz.: the best results cannot be attained with gum sections, and sometimes not without the use of continuous gum work. Neither can a set of teeth be properly arranged without the patient in the chair, and often, in full sets, much time must be spent to secure proper results. And, finally, dentists must devote more attention to the contouring of the artificial gum, which is as essential as the position of the teeth.

The Replacement of Temporary by Permanent Teeth.

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IT is necessary to preserve a temporary tooth till the natural process of removal shall have taken place in the fangs; and whenever it is possible to take away the disintegrated tissue and insert a proper filling as a substitute, this should be done. There are many difficulties: the fears of the patient, the perpetual dribble of saliva, and the small size of the oral cavity. Whatever is done must be accomplished with rapidity, and with as little pain as possible. Should decay be superficial, the use of a little caustic may suffice. We generally moisten a pledget of cotton, rub it on a stick of nitrate of silver, and pass it over the carious surface, then wash well with warm water. This is good for old teeth as well as young. If the surface is temporarily covered, and this simple application occasionally repeated, it will often stop further trouble. We have found it particularly useful round the necks of temporary teeth, and on their labial surfaces. When a filling is to be inserted, the same plan may be adopted where the whole of the carious portion of the tooth cannot be removed. A good gutta-percha or an amalgum filling are the best.

In our desire to retain temporary teeth, we must be careful not to keep them too long. Many have a great dread of removing temporary teeth "because the jaws contract and the permanent teeth cannot come through properly." We have never seen any evidence of this. Many have come under my notice where the temporary teeth have been lost very early, without any overcrowding of the permanent teeth.

Mr. C. Tomes gives reasons for his belief that no contraction of the jaw takes place. The first thing to ascertain is the pain the patient has suffered. If severe enough to keep the child awake at night, we may expect the nerve is exposed. If it has been only at meal times, or immediately after, caries has probably not yet reached the pulp chamber. On examination, should the tooth be loose in its socket, an evidence of periosteal inflammation, and we find direct pressure causes pain, thereby preventing the child from eating with comfort, it is wiser to extract at once Especially is this treatment necessary where, in addition to the above symptoms, there is any sign of an abscess at the root.

Where such teeth are retained, it frequently happens that inflammation and suppuration spread to the permanent teeth. We have seen many cases where, on extracting a temporary molar, the dark discolored cap of a bicuspid was found lying loose in the socket, showing very clearly that its formative pulp had been for some time destroyed. We have been asked "Is it advisable to destroy an exposed nerve and fill the root of a temporary tooth!" Such treatment cannot be recommended. What we generally call a dead tooth among permanent teeth, is not in reality a necrosed tooth, because the periosteum supplies nourishment to the cementum; but a temporary tooth, the nerve of which has been destroyed, becomes, with rare exceptions, necrotic. The periosteum disappears, the alveolar process also, and the tooth is to all intents and purposes a piece of dead bone.

The absorption of the roots of temporary teeth is a vital process. It is accomplished by little papille or mounds of fibrous tissue, blood vessels and large many-nucleated cells called osteoclasts which gradually eat into the living roots of a temporary tooth till they disappear. When the pulp chamber is reached the nerve function is altered, the pulp and papille unite for the same purpose, and absorption still goes on till the crown is an eaten out shell and can be tilted off with the finger, when the papilla will be seen as a piece of gum underneath.

Absorption is not the only process carried on by the little mounds, for they have the power of laying on fresh bone or cement to a part of the tooth where absorption has already taken place.

As the roots of a tooth disappear, fresh bone is thrown out to fill their sockets, so that on one side of the soft tissue calcified structures are removed, while on the other new bone is formed.

If, in the course of its progress, the absorbing tissue comes in contact with a necrosed root, the former is destroyed and absorption ceases. This and the disappearance of periosteum with the bony socket from a necrosed root, are facts clearly demonstrated by their apices protruding through the gum at all angles, often piercing the sides of the cheeks. Even when the roots have gone and the papilla comes in contact with carious dentine in the crown, it will eat out all the living tissue surrounding it and leave the carious dentine standing alone.—*Dental Record.*

The Dental Profession.

DR. E. NOYES.

IT is the usual fashion for essayists to glorify the dental profession of the present by reference to the time, variably remote, when dentists traveled about the country and joined to the occupation of a tin peddler and general tinker and mender, the extraction of teeth and insertion of artificial ones, and the filling of such cavities in teeth as could be done easily; but I wish to remind you that those old times are not fairly represented by any such talk. No, my friends! "There were giants in those days," and the men who were wise and far-seeing and patriotic enough to originate the dental colleges and dental societies, and to establish the dental journals, are entitled to our everlasting gratitude, as the authors of the "profession" of dentistry, and their work set in motion the forces and influences to which we owe most of the progress that has been made since their time. Many of those pioneers were graduates in medicine, and were liberally educated besides, for it was more common than now for men to complete a college course and obtain the degree of Bachelor of Arts before studying medicine. The metal work of that day, and the few and crude forms of the instruments and appliances furnished by the dental depots made it necessary that dentists should be ingenious and well-trained mechanics. To be sure, that has always been equally desirable since, but when the introduction of rubber cheapened prices of artificial teeth so much as to make a hundred thousand people think they could afford to have them who had previously done without, there came a time when all the dentists of the country were busy making rubber sets, almost to the exclusion of operations on the natural teeth, and it became possible to learn in a few months how to make some sort of a set of teeth on a rubber base, and to be profitably busy at once without taking the trouble to acquire any professional education worthy the name. In this way rubber, which has undoubtedly been of great value to both the public and the profession, served incidentally to lower the standard of professional character and attainments for a time. The danger was quickly recognized by the older and better men, and they began crowding every student they possibly could into the dental colleges, and in every way urging the need of thorough preparation for practice. They began also to magnify the department of operative dentistry, and to oppose with all their might the craze which spread over the country for extracting natural teeth and substituting cheap rubber sets. These efforts have been so far successful; there are now compar-

atively few intelligent people who really think a set of artificial teeth to be *very* much better than the natural. Lately the experience which has served to show the limitations and disadvantages, as well as the value and uses of rubber, together with the introduction of all the various forms of crown and bridge work, have brought us to a time when it has again become necessary for dentists to be skillful metal-workers. Rather I should say, that tho it was always necessary, many dentists could not be convinced of it till they became obliged to do crown and bridge work and make partial gold plates, to keep pace with the march of events.

Now, the dental manufacturers and dealers are anxious to supply us with an abundance and variety of furniture, instruments, machinery and apparatus for every detail of practice, wholly undreamed of by our predecessors, and quite sufficient to relieve the ordinary practitioner from the necessity of making his own instruments, or even his materials and patterns, tho some men still find it possible to make a few things that please them better than any they can buy, and the variety of delicate machinery that we now use makes it desirable to understand the details of construction and operation sufficiently to take proper care of machinery and keep it in better condition than is sometimes the case.

In all respects, the dental profession of to-day stands before a wide open door of opportunity which was in part closed to our fathers. In addition to the wonderful equipment just referred to, of instruments, appliances and ready-prepared material for every possible operation and construction that may be required, we have a knowledge of the pathology and therapeutics, and a record of experience in treatment of the various diseases and conditions ordinarily committed to our care that had not been attained fifty years ago, and which have greatly enlarged the range of practice and increased the usefulness of the profession. There is still abundant opportunity for original study, investigation and discovery, with the prospect of equal rewards in practical results, to stimulate the ambition of the studious and educated men in our ranks.

The public have awakened to the need of dental services and the benefits resulting from them to a far greater extent than formerly, so that dentists are not so often obliged to explain and insist, and promise results, in order to gain consent or inspire confidence.

It is easy to see that to fullfil these requirements and enter this open door of opportunity requires strength and rectitude of character and conduct, minds trained to vigor of thought and accuracy of judgment, well stored with the knowledge of arts and sciences relating to all departments of practice, manual dexterity, skill and experience in the performance of all operations and constructions required.—*Dental Review.*

Co-ordination.

AS there should be no antagonism between labor and capital, so there should be none between the inventor, the manufacturer, or the tradesman, and the professional man. The industrial system of the world is as essential to science as science is to it. The college and the forge, the scholar and the artisan, the office and the workshop,—the ideal and the practical,—are not antagonistic, but co-ordinate, and must harmonize for the production of the conditions which make noble art a possibility. All that inventive skill can devise, or careful study suggest, is needed by advancing science, and contributes to the mastery of the problems which it aims to solve. The perfection of the industrial ideal is essential to the perfection of the professional ideal.—*Cosmos.*

A well-known physician says that a milk diet is good for the cure of la grippe. As the word "influenza" was coined because the influence of the stars was thought to cause the disease, it is appropriate that a milky way to a cure should be found.—*New York World.*

Peroxid of Hydrogen as a Therapeutical and Bleaching Agent.

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PERHAPS no remedy of recent notice has attracted so much attention, or realized so fully the expectations, as oxygen in some form.

The most noticeable feature in regard to oxygen is the entire freedom with which it may be used on the tissues of the body without injurious effects, and that while, it is held in the greatest esteem by many, it is *condemned by none.* This cannot be claimed for any other remedy. Oxygen has no enemies, and if it had, being nature's own remedy, it would eventually triumph, notwithstanding man's tendency to ignore it in the treatment of disease.

For all practical purposes we are surrounded by an atmosphere of oxygen to which we are, doubtless, more indebted for the recovery from disease and the healing of wounds than to the medical man with his pills and potions and multitudinous antiseptics. But experience has demonstrated that oxygen, at the moment of liberation from any of its compounds, having an unsatisfied affinity, is more active than in the free state as found in the atmostphere.

Peroxid of hydrogen is a very unstable chemical compound, from which oxygen is readily liberated by contact with substances having an affinity for it. The most probable impurities to be found in it are sulphuric and hydrochloric acids. The presence of the former in an objectionable amount may be determined by the cautious addition of baryta water, which gives a white insoluble precipitate of the sulphate of barium, if sulphuric acid is present. In like manner, by adding a solution of nitrate of silver, a white, insoluble precipitate of chloride of silver is formed if hydrochloric acid is there.

Peroxid of oxygen, when properly applied, may be considered one of the most active, as well as harmless, agents which we possess for sterilizing putrifying substances, after which it is without further action on the tissues—in this manner differing from creosote, carbolic acid, bichlorid of mercury and other antiseptics which depend on their poisonous properties and caustic, irritating effects for their antiseptic virtues, and are attended with danger in their concentrated form.

An ideal therapeutic agent in the treatment of septic conditions is one that may be used freely on the tissues, and not only arresting the fermentative process preceding organic decomposition, but, also, sterilizing and disinfecting the products already formed. There is no remedy in present use which fills this want so well as peroxid of hydrogen. While, according to Bert & Reynard, the soluble ferments, such as the saliva, gastric juices and pancreatic fluids, continue to act in solutions of peroxid of hydrogen, purulent secretions are instantly dispelled in the form of gas on being brought in contact with it. Such has been my experience after experimenting with all forms of pus and septic matter I have been able to procure. Purulent secretions, as found in boils or festered wounds, when brought in contact with peroxid of hydrogen, produce a rapid reaction by disengagement of gas, and are thrown up in a white, frosted form almost identical in appearance to the white of an egg which has been thoroughly whipt. Likewise, tho more slowly, the hard, clotted mucus taken from the nostril may be acted on, being first softened and discolored, and finally thrown off as a white froth. Decayed matter found in the crown cavities and pulp canals of the teeth, under its action, give off rapidly bubbles of gas, leaving that portion which is not ejected in the form of gas in a softened condition, which, in most cases, detaches readily under the use of the excavator, and coming away with ease. This is a decided advantage, as decayed matters which sometimes adhere so tenaciously to the sides of the walls of a cavity may be softtened to such an extent as to peel off easily under the use of the instrument.

We will often find, also, that cavities which appear on examination by the eye or mirror to be perfectly prepared, give off bubbles of gas on being treated with peroxid of hydrogen, thus showing the cavities which have been prepared to the best

of our judgment, may yet contain septic material. This is specially apt to occur in white decay, where it is impossible for the eye to distinguish between the sound and decayed structures, and where, in spite of all efforts, there is often a failure to thoroughly disinfect the parts, Here this agent cannot be too highly prized. Indeed, it would be well if we kept a constant supply in our cabinet, and used it in every time before filling—letting it remain in the cavity for a minute or so before filling, or as long as bubbles continue to rise to the surface. In this manner cavities which, apparently, are perfectly prepared and ready to receive filling will, many times, be found to contain infectious matter.

In treating a diseased surface in the mouth, it is customary, before applying the therapeutical agents, to cleanse the parts of clotted mucus and adhering secretions by the use of warm water, so that the remedies used may come in contact with the tissues, for, cold water not dissolving or removing the clotted secretions of the mouth or from wounds, the remedies used do not come in free contact with the tissues unless they are of such a corrosive nature as to eat their way through. Here peroxid of hydrogen has no equal, tho, on the score of economy, warm water may be found useful to remove mechanically the coarser portions of collected matters, it should be left to peroxid of hydrogen to go over the parts and remove chemically all purulent collections of minutest kind, which it does perfectly.

Prof. Gorgas, in his Dental Medicine, describes its application as entirely painless. This will be found true, except where it is injected into the nasal passages, where it produces a sharp, stinging sensation, requiring its dilution till the pain is reduced. But, as cool water produces pain when used here, it may be attributed more to the peculiarity of the sensitive nerves of this locality than to the properties of the drug.

By its use as a spray from the atomizer, chronic or acute catarrh may be cured. For which purpose it should be diluted till the stinging sensation becomes bearable, after which it is best to use it of as great strength as possible.

It may be relied on as the most valuable antiseptic and disinfectant in use in the treatment of abscesses, access being made first to the cavity of the abscess, and the hydrogen peroxid injected, and repeated till no reaction occurs; any remedy being liable to disrepute if placed in a crown cavity and expected to cure an abscess at the extremity of the root.

The good results obtained by the use of the eucalyptus and iodoform in the treatment of abscesses and wounded surfaces is thought by some to be caused more to its therapeutical influences over the tissues than to its antiseptic virtues. And, according to Dr. Black, in April *Cosmos*, a series of experiments have shown that the bacteria found in the cavities of decayed teeth continue to develop in solutions of eucalyptus or iodoform. But, as the drugs are often combined with others, and their use preceded by the free use of water, it is hard to determine which exerts the most beneficial influence. The advocates of hydrotherapy will give the credit to water, those favorable to eucalyptus to that drug, while the general surgeon is willing to stake his reputation on the iodoform.

Peroxid of hydrogen is, probably, the only agent which has detergent, antiseptic, disinfectant and non-poisonous properties combined with a healthy therapeutical influence over the tissues. As a detergent I have used it in conditions of the mouth where the gums and mucous membrane were covered with clammy, sticky coating of mucus, which adhered very tenaciously, cleaning them off thoroughly and leaving the parts beneath clean and pure. As an antiseptic and disinfectant, to get an idea of its value it may be compared with sulphur dioxid, $S O_2$. If a tooth, having a large cavity still containing the *debris* from the decomposed structures, be taken and filled with peroxid of hydrogen, bubbles of gas will immediately commence to ascend rapidly to the surface, showing that a septic condition is present. If this is rinsed as soon as the action commences and before it has time to complete it, after treating with sulphur dioxid, $S O_2$, for a short time, no bubbles of gas are

given off on the re-application of hydrogen peroxid. This shows conclusively that it has antiseptic and disinfectant properties; for, as soon as the *debris* is disinfected, peroxid of hydrogen is without action on it, while before such treatment it was extremely active. In regard to its non-poisonous properties, I have, myself, swallowed it freely without the least injurious results that I could determine.

In regard to its therapeutical influences over the tissues, we may quote the conclusions of Bert & Reynard. They say: "that peroxid of hydrogen, even when very dilute, arrests fermentations due to the development of living organisms, and the putrefaction of all substances which do not decompose it; that containing, according to circumstances, from two to six times its volume of oxygen, it is capable of advantageously replacing alcohol and carbolic acid; that it can be employed externally for dressing wounds and ulcerations of all natures, in injections, and in vaporizations, and internally; that the results obtained in the largest operations, up to the present, are in the highest degree satisfactory; that not only fresh wounds, but old ones, proceed rapidly to cicitrization, and reunion by first intention appears to be encouraged by its use as a dressing; that the general, as well as the local, state appears to be favorably influenced; that the advantages over carbolized water are its not having any poisonous effect nor unpleasant odor, while its application is entirely painless. It is an effective application in a large class of diseases in which mucous tissue is chiefly affected, and for cleansing purposes, is considered to be unequalled. "It is employed as an internal remedy in low forms of fever, chronic and sub-acute rheumatism, whooping cough, chronic bronchitis, dyspepsia, as it improves digestion, diabetes, etc." "It acts very promptly in feeble, flabby or ill-conditioned ulcers, chancre, and diphtheritic sores, ozoena, wounds, both fresh and putrid, etc."

Peroxid of hydrogen is, also, useful as a bleaching agent for discolored teeth, and has the advantage of being entirely harmless, and without chemical action on the structures of the tooth; is not irritating to the tissues of the mouth; does not itself produce another form of discoloration; requires no special instrument for the introduction of fillings after its use, nor the removal of adjacent fillings to prevent chemical action on their metals with resulting stains.

When practicable, it should be used to the exclusion of all other agents in those cases requiring an oxidizer to remove discoloration, it being objectionable to use other oxidizing agents which weaken tooth structure, or within themselves are liable to produce another form of discoloration, which is, at times, almost impossible to be gotten rid of. It is not claimed for peroxid of hydrogen that it will bleach all forms of discoloration; no one agent will do this; but it should be used in all cases except where, from the nature of the discoloration, a special bleaching agent is required to chemically combat the peculiar stain deposited in the tubuli, as the cyanide of potassium to remove silver stains, oxalic acid to remove discolorations from manganese dioxid, and similar cases, in which only a chemical compound is effective. The bleaching action of hydrogen peroxid appears to be exerted on the decomposed animal matter or mucous stains. It acts on the block sulphid of lead (Pb S) and converts it into the white sulphate of that metal ($PbSO_4$). In bleaching, after taking away with the excavator as much of the decomposed and discolored material as is desirable, the cavity of the tooth should be filled with a solution as concentrated as possible, and refilled till no bubbles of gas are given off on applying it. Or it may be applied on cotton which is saturated with it, and re-applied as often as necessary. The weaker the solution used the more stable it will be found, but requiring a greater length of time in bleaching in proportion to its dilution.

The presence of acids retard, and alkalies hasten, its action, consequently our time may be economized by the addition of such a quantity of a solution of lime water or bicarconate of soda as will render it alkaline in reaction.

Observations as to the length of time in bleaching are liable to differ, if we do not take into consideration the percentage of the solution used. For by calculation

we readily see that a concentrated solution of 100 per cent would bleach in one hour to an extent requiring twenty-five by a 4 per cent solution. But it does not follow that because we buy a solution containing a large percentage of oxygen that it will retain such a strength, as left in bottles unstopt, or at a temperature higher than 70 F., it loses its oxygen.

The following table will show the amounts of oxygen found in solutions of peroxid of hydrogen of varying percentage:

100	grs. of a	100%	solution of	hydrogen	peroxid	contains	47.6 grs. O.
100	"	50	"	"	"	23.8	"
100	"	25	"	"	"	11.9	"
100	"	12	"	"	"	5 712	"
100	"	4	"	"	"	1.904	"
100	"	2	"	"	"	.952	"

The above shows that if a 2 or 4 per cent solution is used, the action must necessarily be extremely slow as compared with a concentrated solution.

The danger of using permanganate of potassium as a bleaching agent is referred to by Dr. E. C. Kirk, of Philadelphia, in the June number of the ITEMS OF INTEREST, as follows:

" In the case of potassium permanganate, there results, among other manganese dioxid, $MN O_2$, a dark brown solid which in itself produces a discoloration that must be gotten rid of afterward by strong solution in oxalic acid, with which it forms an almost colorless and soluble compound. I have used this substance for bleaching teeth, but care must be taken not to use it in a very concentrated solution, otherwise the final treatment with oxalic acid may fail to remove the discoloration from the manganese dioxid which has been precipitated in the tubuli, and leave the tooth in a worse condition than the first. Used with care, in dilute solutions of a claret color, and almost immediately followed by a strong oxalic acid or binoxalate of potassium solution, I have obtained good results where the tooth structure to be bleached was not very thick or dense."

The use of chlorin in any form, while the most universal, is, without doubt, the most injurious agent on tooth structure which could possibly be selected from our present list of bleaching agents.

The following precautions, according to Professor Truman, of Philadelphia, should be observed:

"The treatment of the tooth previous to bleaching is the same for all methods. The upper third of the pulp canal should be solidly filled with gutta-percha. Gold has been recommended, but should not be used in any tooth to be bleached by chlorine, as it is attacked by the latter, and the auric chloride formed decomposes in the presence of organic matter by the action of light and oxygen, and results in a permanent purple stain which cannot be gotten rid of. For this reason a tooth to be bleached should have gold fillings removed if they are in position.

The cavity should in all cases be washed out with ammonia or borax to remove fatty matter, and no substance which has the power to coagulate the albumen should be used, as such prevents the ingress of chlorine to the tubuli. For the final washing, distilled water should be used, as river water, ordinarily, contains sufficient iron to stain the tooth in combination with the chlorin as ferric chlorid.

"Lastly, after the bleaching is completed, the cavity and pulp canal should be filled with oxychlorid of zinc, which should be inserted with instruments of bone, hard rubber or wood. It should be carefully borne in mind that no metallic instrument should come in contact with the tooth after the chlorin has been applied."

The foregoing precautions so limit the actions of the practitioner of dentistry as to render the use of chlorin in bleaching teeth as an act which should be resorted to only in desperate cases, for we note that gold fillings in position should be removed to avoid discoloration from auric chlorid; that only oxychlorid of zinc or gutta-percha may be used as filling materials, and that only instruments of bone, rubber or wood are admissible in applying the filling material, as metallic instru-

ments should not be brought in contact with the bleached surface, for fear of producing a different form of discoloration.

But such are not all the objections to the use of chlorin for this purpose, that of injuring the tooth structure and irritation to the throat of the patient being important considerations. The hydrochloric acid formed during the bleaching process by chlorin is, probably, the most active destroyer of tooth structure that can be selected, a solution of this acid completely destroying a tooth in from 10 to 20 hours, tho a concentrated solution of sulphuric acid requires about the same number of days to accomplish the same end. Therefore, the conclusion we arrive at is, that chlorin is the most injurious agent which can be used for bleaching purposes; sulphur dioxid, SO^2, which is a valuable disinfectant, less injurious, and peroxid of hydrogen least injurious, or, rather, not injurious, but decidedly beneficial, whether it is in the cavity of a tooth or the throat of a patient.

The demand for peroxid of hydrogen being small, it is difficult to produce it in just any percentage of strength desired and at that low price at which it might be obtained if it had a larger sale, as the materials from which it is manufactured are cheap.

To obtain the best results from peroxid of hydrogen, the following points should be borne in mind:

1. That it should be kept in glass-stoppered bottles at a not higher temperature than 70° F., tho when diluted it may be kept at a higher temperature without being decomposed.

2. The presence of acids retard, and alkalies hasten, its action.

3. That its action is quickened in proportion to its concentration, and that if used in very small strength for bleaching, it may require a length of time greater than the dentist or patient is willing to give.

4. The most common impurities being sulphuric and hydrochloric acids, the sulphuric acid may be detected by the addition of a small quantity of baryta water, and the hydrochloric acid by a solution of nitrate of silver, when, in either case, a white precipitate will be formed if the acid indicated be present.

5. When used to clear the nasal passages, the stinging sensation produced may be reduced by dilution, and heated to the temperature of the body.

6. That when used in abscesses or other diseased conditions, it should be carried to the parts affected, as, unlike carbolic acid or creosote, it possesses no curative powers when applied to remote parts as a counter-irritant.

7. Re-apply as long as bubbles of gas are given off.

By carefully following out each of the preceding rules, peroxid of hydrogen is an indispensable article in the dental office.—*Southern Dental Journal.*

A Good Point.—An opening is made in the rubber a little larger than ordinarily made by punches for that purpose, "on the scientific fact that a large opening in the rubber for an irregular molar is better than a small one," as the rubber has a chance to accommodate itself to the grooves in a tooth, while, if small, the rubber stretches over the grooves and leaves a space for the fluids of the mouth to leak in and destroy your filling.—*Dr. J. W. Ivory.*

"We, of the Indiana Dental College, notice this month a page or so devoted to the discussion of woman as a dentist. In December, when our young and learned doctor spoke against women dentists, the subject was taken up by our college association. As we have three lady students, it was a spirited discussion. Of course, our ladies were in favor of lady dentists, while the majority of the students were opposed. It was finally agreed, however, that they could do as they pleased. Our college has a membership of 75, all bright and lively. A nicer set of gentlemen and ladies can not be found. The college association has done some excellent work during the past five months. STUDENT."

Vaccination.

PROF. HUXLEY.

YOU are familiar with what happens in vaccination. A minute cut is made in the skin, and an infinitesimal quantity of vaccine matter is inserted into the wound. A vesicle appears in the place of the wound, and the fluid which distends this vesicle is vaccine matter, in quantity a hundred or a thousandfold that originally inserted. Now what has taken place in the course of this operation? Has the vaccine matter by its irritative property produced a mere blister, the fluid of which has the same irritative property? Or does the vaccine matter contain living particles, which have grown and multiplied where they have been planted? The observations of M. Chauveau, extended and confirmed by Dr. Sanderson himself, appear to leave no doubt. Experiments similar in principle to those of Helmholtz on fermentation and putrefaction, have proved that the active element in the vaccine lymph is non-diffusible, and consists of minute particles not exceeding 1–20,000th of an inch in diameter, which are made visible in the lymph by the microscope. Similar experiments have proved that two of the most destructive of epizootic diseases, sheep-pox and glanders, are also dependent for their existence and their propagation on extremely small living solid particles, to which the title of *microzymes* is applied. An animal suffering under either of these terrible diseases is a source of infection and contagion to others, for precisely the same reason as a tub of fermenting beer is capable of propagating its fermentation by "infection" or "contagion," to fresh wort. In both cases it is the solid living particles which are efficient; the liquid in which they float, and at the expense of which they live, being altogether passive.

Now arises the question, are those microzymes the results of *Homogenesis* or of *Xenogenesis;* are they capable, like the Torule of yeast, of arising only by the development of pre-existing germs; or may they be, like the constituents of a nut-gall, the results of a modification and individualization of the tissues of the body in which they are found, resulting from the operation of favorable conditions? Are they parasites in the zoological sense, or are they merely what Virchow has called "heterologous growths?" It is obvious this question has the most profound importance, whether we look at it from a practical or from a theoretical point of view. A parasite may be stamped out by destroying its germs, but a pathological product can only be annihilated by removing the conditions which give rise to it.

It appears to me that this great problem will have to be solved for each zymotic disease separately, for analogy cuts two ways. I have dwelt on the analogy of pathological modification, which is in favor of the xenogenetic origin of microzymes; but I must now speak of the equally strong analogies in favor of the origin of such pestiferous particles by the ordinary process of the generation of like from like.

It is, at present, a well-established fact that some diseases, both of plants and of animals, which have all the characters of contagious and infectious epidemics, are caused by minute organisms. The smut of wheat is a well-known instance of such a disease, and it cannot be doubted that the grape disease and the potato disease fall under the same category. Among animals, insects are wonderfully liable to the ravages of contagious and infectious diseases caused by microscopic *Fungi.*

In autumn it is not uncommon to seen flies motionless on a window-pane, with a sort of magic circle in white drawn around them. On microscopic examination, the magic circle is found to consist of innumerable spores, which have been thrown off in all directions by minute fungus called *empusa musce,* the spore-forming filaments of which stand out like a pile of velvet from the body of the fly. These spore-forming filaments are connected with others, which fill the interior of the fly's body like so much fine wool, having eaten away and destroyed the creature's viscera. This is the full-grown condition of the empusa. If traced back to its earlier stages, in flies which are still active, and to all appearances healthy, it is found to exist in the form of minute corpuscles which float in the blood of the fly.

These multiply and lengthen into filaments at the expense of the fly's substance; and when they have at last killed the patient, they grow out of its body and give off spores. Healthy flies shut up with diseased ones catch this mortal disease and perish like the others. A most competent observer, Mr. Cohn, who studied the development of the empusa in the fly very carefully, was utterly unable to discover in what manner the smallest germs of the empusa got into the fly. The spores could not be made to give rise to such germs by cultivation, nor were such germs discoverable in the air, or in the food of the fly. It looks exceedingly like a case of abiogenesis spontaneous generation, or, at any rate, of xenogenesis or the result of a modification of tissue, and it is only quite recently that the real course of events has been made out. It has been ascertained that when one of the spores fall on the body of a fly it begins to germinate and sends out a process which bores its way through the fly's skin; this having reached the interior cavities of its body, gives off the minute floating corpuscles, which are the earliest stage of the empusa. The disease is "contagious," because a healthy fly coming in contact with a diseased one, from which the spore-bearing filaments protrude, is pretty sure to carry off a spore or two. It is "infectious," because the spores become scattered about all sorts of matter in the neighborhood of the slain flies.—*Medical Press.*

"Maggots" as a Cause of Dental Caries.

SOME little time since a correspondence took place in the columns of a medical contemporary about "maggots as a cause of dental caries." The following letter of Mr. L. B. Brunton, of Commercial Road, E., revives the subject: "Henbane seeds are still not uncommonly used for toothache, under the impression that the ailment is caused by worms in the decayed teeth. A penny is made hot in the fire, and immediately on removal a pinch of the seeds is dropt on it, and the whole covered at once with a wineglass, which becomes filled with thick fumes. The glass is then applied to the mouth and the smoke inhaled, when the worms are supposed to be expelled. I called one morning to see a patient who had just used the remedy, and I naturally essayed to correct his notion of the cause of his malady; but he smiled in a superior manner, and said that he had not only seen the worms on two or three occasions, but could show me three in the glass he had recently used. There, sure enough, were three little brown-headed larvæ—or, at all events, they looked exactly like larvæ to the naked eye—but on examining them at home under a 2-inch glass, their true nature was explained. They were simply the embryos of three seeds which had been forcibly expelled on the rupture of their seed-coats and had adhered to the moist side of the glass, and thus escaped the destruction which had overtaken the rest. Science was triumphant; my patient confessed his defeat, and remarked that he had long known that we must not believe all we *hear*, but found also that we must not believe all we *see*."—*Dental Record*, Eng.

Patience with our Patients.

THIS "courage of virtue," as patience is defined, does not add so much to our joys, as it diminishes our sufferings.

Our patients abound with pains and troubles. What they lack in this physical and moral courage of virtue, we must abound in, to soften these pains and ameliorate these sufferings.

How powerful the influence of patience in dental operations!

The most permanent and beautiful operations of dentists are the results of patience; and it is a prime cause of the most brilliant success of life.

A patient dentist will become a favorite with every one with whom he associates, and especially with his patients.

D. H. SULLIVAN.

Delphi, O.

Sunshine.

DR. W. JOSLIN NYE.

IT is a known fact that a potato, placed in a warm cellar with but a single window, will sprout, and that the sprout will creep along the ground till it reaches the window, when it will make directly for the same, and continue to grow in that direction so long as it can support itself. House plants instinctively turn their leaves toward the windows, thirsty for sunlight. A running vine planted in a shady locality seems almost to possess intelligence in creeping around where the rays of sun may fall on it. Now, shall not mankind be as wise as the plant, or as sagacious as the potato?

A tadpole, confined in darkness, would never become a frog; an infant, being deprived of heaven's free light, will grow into a shapeless idiot instead of a beautiful and responsible being. Hence, in the deep dark gorges and ravines of the Swiss Valois, where the direct sunshine never reaches, the hideous prevalence of idiocy startles the traveler. It is a strange, melancholy idiocy. Many of the citizens are incapable of articulate speech. Some are deaf; some are blind; some labor under all of these misfortunes, and all are misshapen in every part of the body. I believe there is in all places a marked difference in the healthfulness of houses depending on their aspect with regard to the sun, and those are decidedly the most healthful, other things being equal, in which all the rooms are, during some part of the day, fully exposed to the direct light.

Epidemics attack inhabitants on the shady side of the street, and totally exempt those on the other; and even in epidemics, such as ague, the morbid influence is often thus partial in its labors.

One of our journals, commenting on the healing influence of light, remarks that "Sir James Wiley, late physician to the Emperor of Russia, attentively studied the effects of light as a curative agent in the hospitals of St. Petersburg; and he discovered that the number of patients who were cured in rooms properly lighted was four times greater than that of those confined in dark rooms. This led to a complete reform in lighting the hospitals of Russia, and with the most beneficial results."

In all cities visited by the cholera, it was universally found that the greatest number of deaths took place in narrow streets, and on the sides of those having a northern exposure, where the salutary beams of the sun were excluded.

The inhabitants of the southern slopes of mountains are better developed and more healthy than those who live on the northern sides; while those who dwell in secluded valleys are generally subject to peculiar diseases and deformities.

The different results above mentioned are due to the agency of light, without a full supply of which plants and animals maintain but a sickly and feeble existence. Eminent physicians have observed that partially deformed children have been restored by exposure to the sun and the open air. Scrofula is most prevalent among the children of the poor in crowded cities; this is attributed by many persons to their living in dark and confined houses, such diseases being most common among those residing in underground tenements. In scrofulous affections and bodily deformities, Dr. Edwards advises isolation in the open air, and nudity where it would not be incompatible with comfort, as calculated to restore the sufferer. People having a consumptive diathesis, or those having a consumptive ancestry, should pay particular attention in the choice of a location for a dwelling, to select one which has a southern exposure. Sick people are too apt to be regardless of their surroundings, and depend entirely on their physician to cure them.

A thoughtful man, when he is affected with illness, will seek to discover the cause, and also the influences surrounding him which may aggravate the complaint. On making an investigation, he may not only find that his rooms are not well ventilated, that the location is not free from swampy dampness, but that his dwelling is so situated behind hills, or under so much shade, as to entirely shut him in from

the light of the sun. Discovering these disadvantageous conditions, he should at any sacrifice of business or property, if he value health and life, betake himself to some spot where he may secure all of nature's agencies for his recovery. Occasionally, some one daily exposed to the sun, in the heat of summer, gets an overdose of the curative agent, and has an attack of sunstroke. All active medicines are injurious, taken in over-doses; but sometimes the sun's heat is censured for what bad habits have induced. If a man eats and drinks excessively, or sets his blood on fire with whiskey, he is more liable than anybody else to have sunstroke.

Some medicines become injurious by mixing, and it could hardly be supposed that the pure sunlight, fresh from God's laboratory, would mix well with the vile drinks of our groggeries. As, however, the lightnings of heaven sometimes kill innocent people, continuous exposure to a summer's sun may, in some cases, strike down sober, temperate men. To avoid this, those who are compelled to work in the sunlight during the hottest days of the year, would do well to wear a wet napkin or handkerchief on the top of the head, under the hat. The farmer or gardener has something still better in the cabbage leaf, which may be dipt in water and worn in the same way.

Let no one be afraid of sunlight because of occasional cases of sunstroke. If statistics could be obtained regarding those who die directly or indirectly from want of sunshine, we should find that this class would number a thousand to one who dies of an overdose. People in the country are apt to bury themselves beneath the foliage of shrubs and trees, and bid defiance to the few rays that do penetrate, by closing the green blinds which shelter the parlor windows. Mechanics and a great many of the business men in cities are contented to pursue their vocations all day by gas-light. There is an office in New York city where, it is said, the windows are so shut in by its contiguity to another building, that the sunlight never enters it, and that every one who has occupied it for the past ten or fifteen years died of consumption. People who break away from their business for summer recreation, and make tours to the watering places, think they derive great advantage from change of air. It is true they do. The qualities of the air are greatly modified and affected by the geological formations beneath the surface, and the vegetable products which present themselves above; so that one cannot breathe the air of any of these localities without extracting properties which the system requires. In this way change of air frequently proves highly beneficial; but in many of these cases benefits are attributed to this cause when they are more greatly due to exposure to sunlight. When people allow the sun to paint their faces brown, torpid livers are less liable to paint them yellow.—*Sanitary Volunteer.*

The Dental Protection Association is a live organization. It seems to be taking a strong hold on the profession. The recent meeting of this Association in New York was enthusiastic. With great unanimity they passed the following resolution, which certainly commends itself to every dentist:

NEW YORK, January 16, 1890.

At a mass meeting of over one hundred dentists, gathered from various parts of the United States, held in the City of New York, January 16, 1890, of which Dr. O. E. Hill was chairman, it was, on motion, uuanimously

Resolved, That we thoroughly endorse the Dental Protective Association of the United States, and urge on every member of the dental profession to join the Association and send to Dr. J. N. Crouse, of Chicago, its president, the initiation fee of ten dollars.

WM. JARVIE, Sec.

In Dr. Crouse, this Protection Association has a strong, judicious, and yet vigilant leader, and the personification of honor and fairness to all. Let him and the Association have the united support of the profession. But support means money, and union, and aggression.—Ed. ITEMS.

Australian Dentists.

YANNA MEENA.

THERE is not a single paper devoted to dentistry in the colonies. I have noticed in my travels about Australia that few members of the profession subscribe to a Dental Magazine. Not long since I visited a dentist in Brisbane, and remarked to him the absence of dental works in his bookcase. "Oh!" said he, "books and journals are all rot; I don't believe in book learning." "Then," said I, "how do you keep pace with the times in your knowledge of the profession." "I learned my *trade* when a boy, and I flatter myself that I am a better workman than any of your men with college degrees," was his reply. I fear he is not the only Australian dentist who rejoices in the same opinion. Unfortunately, the Dental Act has not yet found its way to our shores, and judging by the state of Medical and Pharmacy Acts generally, and the difficulties the members of the medical profession have to contend with, opposed and baffled in every direction by an army of quacks, who may make post-mortem examinations and give certificates of deaths, it will be some time before the L.D.S., or any other dental qualification, can look for protection by Act of Parliament in Australia. Most of the large towns teem with dentists (?) more especially Sydney, and no wonder. The only qualification necessary to enable, I cannot say entitle, one to practice dentistry in Australia, is plenty of good, unblushing Australian cheek, without which even the F.R.C.S., L.D.S., etc., would fail to secure patronage. A short time ago I wrote to a firm of dentists in one of our capital towns, asking them to do some gold work for me, in reply to which they suggested I should call on them, pay them £50, for which sum they guaranteed to teach me the *trade* in a few months, and mentioning several young men whom they had turned out of their establishment in three months, full-fledged dentists, as practical illustrations of their ability to do so. What a chance for the village barber to become a barber-dentist again. It is most amusing to see the various modes of advertising that some of these professional (?) men adopt. When in Sydney a short time ago, I saw a lad parading the street clothed in the uniform of the 1st Life Guards, with the following advertisement painted on his cuirass, "Teeth painlessly extracted, 1s.; artificial teeth, 5s. each; full sets, £5. Fit and workmanship guaranteed. N$_2$. O. Gas administered daily. No extra charge. Roll up and give ——— & Co., the Dental Artists, a turn. No. ——— Street." Another exhibits wax figures in his window showing various operations. Another employs a boy to stand at his front door and distribute gem photos of the dental artist upstairs. In North Queensland we are well supplied with dentists. In this little town of about 1,500 inhabitants, there are three struggling for a living. This colony will, when we have a Land Act suitable to the nature of the country that will enable the white man to make a living on the land, become a good field for the dentist who has had a thorough training, but at present there is not sufficient population to support one in a permanent practice. Children born and brought up in this Northern colony as a rule lose their temporary teeth a few months after cutting them. Disease usually attacks the upper incisors first, then the lower molars. It is quite a common thing to see a young lad at fourteen years of age without a sound tooth in his mouth, yet with the Aboriginals and Chinese half-casts it is quite the reverse.—*Dental Register, Eng.*

Rickets is essentially a diet disease, and manifests itself chiefly in the bones, which become enlarged at their ends and undergo a general softening. Eruption of the teeth is delayed, but calcification of the temporary crowns is well advanced at birth, so their general structure is not much interfered with, tho they are rapidly affected by disordered secretions of the mouth. The permanent teeth, especially the early molars and the incisors, are discolored, pitted and ridged, their cusps are extremely pointed, and caries rapidly affects them. The blood is deficient in lime salts for nourishment, and for the building up of bones and teeth.—*R. D. Pedley, Eng.*

Practical Items.

EDITOR ITEMS:—Several times I have sent you short communications which you have seen fit to publish, and I hope they have been of aid to some of those who wander and plod along the road of dentistry, seeking, as I have done, and still do, to advance themselves and serve a suffering humanity.

Presuming on your good nature and kindness, I send you the following hints, that may be not entirely useless to the members of the profession:

MAKING SHEET WAX.

The best thing I have found for making sheet wax is a slab of *plaster paris*. To make this, take a piece of "dam rubber" and stretch it evenly on a smooth, even board; straining it smooth by tacking with tacks or pins. Then take four pieces of wood, three-eighths of an inch thick, and make a parallelogram about the shape and size it is desired the slab to be, say 3½ x 6 inches. I usually made it on the stretched rubber, tacking it through the rubber into the board. Fill this with plaster that has not been stirred, but mixt with water, by sifting the plaster into the water and shaking the mixing bowl. If you stir it, you will get it full of bubbles. When full, place a piece of glass that has been well wetted with soap-suds on the plaster, and press it down evenly all around. Let it set, and on removing the glass and wood, etc., you have a nice, smooth, even plaster slab, that is to be used wet for dipping the wax. Dip a sufficient number of times to get a required thickness, and scrape one or two edges thus dipt on the rim of the wax dish, and plunge into cold water. The object of scraping the edge is to make a break in the wax, so as to let it loosen from the slab. It requires no soap; nothing but water.

PACKING PLAIN TEETH,

or any case where it is desirable to use pink rubber and have it remain in place. Warm the case with dry heat before packing, and thoroughly paint the parts where the pink is with desired pink rubber dissolved in chloroform; keep it warm till the solvent is all evaporated. The pink rubber can then be placed in position and kept there while packing the other rubber. It does not hurt if the pink solution gets onto the pins, as it is too thin to form a part of the body of the plate.

By this process I find no difficulty in packing my best cases of plain teeth, and having the pink rubber where I wish it, and no black or red rubber showing through it.

By taking pains in packing between the teeth with small pieces or strips, there is no need of getting a particle other than the solution on the pins, and by using a little common sense, those who have often found their best cases unsightly and unsatisfactory will be surprised at the result.

SHELLAC FOR FELT WHEELS AND CONES.

How many find their felt cones and wheels get out of shape, and wear out and break in a short time? If they are soaked in shellac varnish that is about as thin as water, and then allowed to dry thoroughly before being used, they will keep their shape and last a *long, long* time.

This is specially advisable with the cones, as they are very apt to break in two before they are worn out. It is not so necessary for wheels.

DARK JOINTS.

A great deal has been said and written about dark joints and broken sections in vulcanite work. I think I have solved the enigma. I use a flask that weighs two and three-quarters pounds, and this great weight lies mostly in the ring and cover of the flask.

The difficulty is caused by the springing of the ring when under pressure, allowing the plaster to crack. If some enterprising firm would put flasks into the market that would not spring they would find a ready sale. They are not as convenient as the rapid closing flasks already in use, but the result they give is a saving of time.

J. H. BEEBEE.

Rochester, N. Y.

Notes on the Preparation of Cavities for Cohesive Gold Filling.

DR. FRANK COLYER.

SUCCESS in filling depends on carefully prepared and carefully filled cavities. It is to the preparation of the cavity I wish to confine my remarks, and it is not my intention to give any detailed account, but simply to draw attention to facts which seem of the most importance.

For the sake of description it seems best that a few remarks should be made with regard to preparation of cavities in general, and then a short consideration of the methods pursued in preparing special classes.

Sharp instruments, especially burs and enamel chisels, are essential for good results. With regard to the application of the rubber-dam, previous to preparing the cavity, I think with its aid we can do work quicker, and what is still a greater advantage, have both hands free to work with. I always prepare my cavities on some definite system, and that pursued is as follows:

First, open the cavity up freely by means of burs and enamel chisels, getting rid of all overhanging edges of enamel, etc. Next, clear out all softened and decayed dentine as far as possible with sharp excavators, and, thirdly, shape the cavity to the form required to hold the filling.

With regard to opening up the cavity, the most important point is the avoidance of overhanging edges of enamel; they are a source of failure, and too much cannot be said on this point. It is an almost constant rule to take away any enamel unsupported by dentine (the exceptions, perhaps, being in those few places where the enamel is not subjected to direct pressure, as for instance on the labial surfaces of front teeth.) The reason is simple, enamel is brittle, dentine elastic, and unless the enamel has something to counteract the strain, it fractures.

The next step, removing the dentine, requires but few words, and these are—use sharp excavators and make decided cuts, avoiding scraping, the latter process being extremely uncomfortable to the patient.

Shaping the cavity is a most important item, and may be safely divided into two distinct steps—(1) obtaining a form which will retain the plug, and (2) trimming and paring the edges.

With regard to the former, always endeavor to make the cavity so that all parts are easily accessible, avoiding deep undercuts and receding angles, for with cohesive gold each separate piece has to be taken to the place it is intended to occupy, and if you have inaccessible undercuts the result is that point of the cavity is insufficiently filled.

Remember, also, that you are putting a resistant substance into a resistant substance, and that therefore it will only require the slightest amount of undercut to retain the plug.

The edges require great care in finishing, for on them depends, to a large extent, the durability of the filling. The best results are certainly obtained by slightly bevelling the edges, leaving them neither straight nor yet undercut. If you have the edge much undercut there will be a few enamel fibres left unsupported by dentine (it being remembered that the fibres always run in a direction toward the pulp), and the result is that with improper pressure they will give way, and hence form a vulnerable point in the filling; if, however, you leave them but slightly undercut, then all the enamel is supported by dentine, and prevented failure.

The best instruments for carrying out this part of the work will be found to be enamel chisels for sides of proximal cavities, small spoons for the cervical edges, and fine-cut cavity burs for the crown surfaces.

Passing on from the edges, starting points certainly deserve a little attention, and to give successful it is best to divide this part of the operation into two distinct steps, viz., burying the drill to such a depth that the head is just below the level of that part of the cavity where the point is being made, and then moving the head with a slight rotary motion; if this is carried out the effect is a small cavity.

Now, should the drill-head only be buried half-way, and then the rotary motion made, the effect will be a cup-shaped cavity, which is useless.

Further, with regard to starting-points, always drill them in dentine, and not at the junction of the enamel and dentine; for, if drilled in the latter place, one wall of the starting point is formed by enamel, and the effect is fracture during filling.

The direction of starting-points should be as far as possible away from the pulp.

Another point in preparing and shaping proximate cavities is the relation of the tooth to its neighbor. All joints should be made as accessible as possible to the tongue and tooth-brush, that food, etc., may be prevented as far as possible from lodging near them; and therefore, bearing this fact in mind, always cut back the tooth, so that, when filled and allowed to close, you get only the fillings in contact with the adjoining tooth, and not the enamel of one with the enamel of the other.

With regard to crown cavities, but few words are necessary. Make the walls just slightly out of the perpendicular, taking care that all decayed fissures are cut out. The floor of the cavity should be made flat, and the edges trimmed as directed above.

In filling these cavities with gold, they are best started by wedging two or three large unannealed cylinders down to the base till they are steady. Starting-points should be avoided, there being a danger in drilling them of injuring the pulp. Fissure and inverted cone burs will be found most useful for shaping this class of cavities.

Proximal cavities in bicuspids, etc., require more care in preparation. To facilitate their description, I will take as an example a cavity in the anterior proximal surface of a first upper bicuspid. One will readily see that in this class of cavities there are two directions in which we have to prevent the filling coming out, the one from above downward, and the other sideways.

To overcome this, two ways are open to the operator; the one by cutting the labial and lingual walls so that they diverge not only in a direction toward the cervical edge, but also toward the second bicuspid; the shaped cavity made being a double wedge.

The other, by making two lateral grooves, which diverge slightly as they proceed upward. The cervical edge in these cavities should be left quite flat, and the edge of enamel bevelled off slightly; however, should the cervical edge be near the termination of the enamel, then it is best to remove all enamel remaining, and allow the edge to be formed by dentine alone; a thin edge of enamel is pretty sure to fracture and chip off in filling.

Should any fissure exhibit itself on the grinding surface, it must be cut off; if this is done, it will form an additional hold for the filling, if left, it is a nucleus for fresh trouble.

Anchorage in these cavities is obtained by making two starting points, one in the cervico-lingual and one in the cervico-labial angle, great care at the same time being taken that they are drilled in dentine and not at the junction of the enamel and dentine.

In proximal cavities in front teeth a different mode of procedure to the above is necessary. The hold for the filling is obtained by grooving both labial and lingual, if there is enough dentine remaining at those parts of the cavity. The cervical edge being left flat, and at each cervico-labial and cervico-lingual angle a starting point drilled and these latter opposed by a pit drilled at the apex of the cavity.

A point of importance in these cavities is to avoid leaving frail walls on the front surface; if left, and the cavity loosely filled, the tooth and filling appears black and looks extremely ugly.

When possible, I drill out all cavities in front teeth from the back, cutting them to the shape recommended for bicuspids, etc. The advantage of this method is, that the front surface of enamel can be retained, and the showing of a large amount of gold prevented.

The fact should never be lost sight of, that success in filling depends as much on carefully preparing the cavity as on filling it.

Splurge.

THE little scrap entitled the "Curiosities of Medical Literature," as published on page 81 of the February ITEMS, and accredited to the *Brooklyn Medical Journal*, reminds me of a wonderful operation (?) performed by myself some twenty years ago.

A young lady came into my office suffering greatly with a "tumor" in her face. The swelling seemed to commence near the margin of the upper lip, and it extended up by the side of the nose to the eye, almost closing that organ. A glance at the patient revealed the seriousness of the case. A once handsome face was distorted, lop-sided and ugly—it was more—it was revolting!

After a hasty diagnosis, I picked up a pair of forceps and removed a dead tooth, which gave vent to the confined pus, and relief was almost instantaneous. The discharge was unusually copious, and the pus exceedingly offensive. The relief was as speedy and permanent.

Instead of extracting the defunct dental offender, I suppose I might have cut into the lady's face somewhere up towards the orbit, and laid back the flap in a most "scientific way," so I could replace it and sew it up after removing the "tumor" (?) and charged her twenty-five dollars for my skillful (?) services; and made a cicatrix for the lady to carry in her face the rest of her life, as a monument of my gumption. But I didn't. I "pulled" her tooth, and charged her twenty-five cents for it, and she soon got well, and her pretty face returned. G. W. ADAMS.

Bristol, Pa.

The New Hypnotic—Sulphonal.

SULPHONAL was first discovered by Prof. E. Baumann, of the University of Freiburg. Its physiological actions and clinical uses were first examined by Prof. Kast, who is also a member of the medical faculty at Freiburg University.

Sulphonal has been found to be a reliable hypnotic which has none of the peculiar effects of the narcotics on the nervous and circulatory systems. It has no injurious secondary effects, and may be taken in the proper doses with impunity to produce natural, quiet sleep.

It has another great advantage which is of considerable practical importance, viz.: its absolute freedom from taste and odor.

In a long list of hospital experiments, the dose usually employed was 2.0 to 3.0 Gm. (30 to 45 grains). Healthy persons would feel tired and sleepy after its administration, but few of those experimented on (20) would actually fall asleep and remain asleep for a number of hours. Then sulphonal was given to more than thirty hospital and private patients, and about 120 single observations being recorded. Nervous sleeplessness, due to neurosis or psychoses, insomnia accompanying acute febrile diseases, and sleeplessness of old age were principally selected for the purpose.

Almost without exception, sound and quiet sleep was produced within from thirty minutes to two hours after the administration of the drug. No untoward symptoms were observed on awakening, the sleep being as refreshing as if it had been due to natural causes. Pulse, respiration and digestion were not interfered with. The average dose was 30 grains, 15 grains being sufficient for women, while men occasionally required 45 grains.

Another remarkable feature is mentioned by Kast: that no tolerancy is established toward the drug. Its action is the same after many doses have been taken by the same individual as after the first dose.

If given several hours before bedtime sulphonal will produce sound, uninterrupted sleep.

Other observers have noted similar favorable results which have been reported in the journals.—*Dental Register*.

Resuscitation in Threatened Death from Chloroform.

DR. F. T. MILES, BALTIMORE, MD.

IT being now generally conceded that the best means of resuscitating patients threatened with death during the inhalation of chloroform is to invert the position of the body, it is a matter of interest to consider how this change of position accomplishes the result aimed at. The explanation usually given, that the blood is sent in increased amount to the centers innervating the heart and the apparatus of respiration, seems unsatisfactory, when we reflect that the cranial cavity is so nearly a completely closed one that the amount of its fluid contents can scarcely be expected to vary to any considerable extent through gravitation. Again, if the heart has ceased contracting, the effect of gravity will be principally on the blood in the veins, diminishing its onward flow, and thus tending to arrest the movement of the blood in the capillaries. Now we know that stopping the movement of the capillary blood is one of the most prompt and effectual means of destroying the activity of the nerve-centers. Again, the danger to life from the action of chloroform arises from stopping (I do not say paralyzing) the heart, and while we know of a cardio-inhibitory center in the medulla oblongata, the excitement of which will slow or stop the heart, we know of none whose excitement will increase its strength or arouse its activity. We must therefore look for some other explanation of the beneficial effects of the inverted position.

It appears to me the strikingly good effect obtained by inverting the position of the body results from the direct excitation of the heart caused by the flow of blood into the right auricle (and ventricle), which takes place when the body is in that position.

The liver is roughly computed to contain one-fourth of the blood of the whole body. The length of the vena cava inferior, from the point where the hepatic veins open into it to its ending in the right auricle, is quite inconsiderable, and it is held open by its adherence to the comparatively unyielding substance of the liver. It is further kept patulous by its attachment to the tendon of the diaphragm just before emptying into the auricle. The hepatic veins, in their course through the liver to empty into the vena cava, cannot collapse, being adherent to the hepatic substance. All this is favorable to the pouring, so to speak, of the blood from the liver into the right auricle and ventricle when the body is inverted. We know from experiment that one of the most potent means of exciting the excised frog's heart to renewed activity, after it has ceased to beat, is to fill its chambers with blood or other fluids, and I do not see why the sudden distention of the auricle in the human body should not act in a similar manner.

Moreover, it is not impossible that a mechanical influence may contribute to the beneficial effects, inasmuch as the inversion of the body is brusquely made, and thus the sudden pressure of the heavy liver against the diaphragm and heart may act as a mechanical stimulant to the latter.

I have seen one case at least in which, during the inhalation of chloroform, death seemed imminent from stopping of the heart, and in which the organ was stimulated to contraction by pretty heavy blows administered with the open palm over the cardiac region.—*Medical Record.*

WE are not here for holidays: our lives are not for dreaming,
While toiling hands and busy brains are laboring all around;
Men are stirring, wheels are whirling, fires gleaming, vessels steaming,
There is work on land and ocean, and in regions underground,
And full often, as I ponder o'er some lofty pile upspringing
On triumphant deeds accomplished, on some mighty victory won,
I find that in my ears a chime of thought has been set ringing—
"All great works are made up of little works well done." —*Selected.*

The Education of Physicians.

THE American medical profession has in it a multitude of rightly educated physicians, but it comprises also an enormous number who are but partially educated in their profession. Of all places in the universe, in America there are doctors and doctors.

The American medical profession cannot be in any degree held responsible for its condition, not merely because it has no power over its own members after they have entered, but especially because it has no control over the gates through which men flock into it. In some States the law allows any one to set up as a doctor who wishes; while where there is any law regulating the mode of entrance into the profession, such law usually puts the power of granting the right to practice into the hands of the medical college. To be sure the medical college is nominally required to examine the candidates, and to shut out the unfit. Almost any small group of physicians can, however, constitute themselves a medical school, and conduct their examinations so privately that no outsiders can know whether these trials be substance or shadow. The national vice, the imperative desire to get on in the immediate present, fills the land with persons who wish to get the right to practice medicine at the lowest outlay in money, time and labor. For these candidates the schools bid, one against the other; and so the standard falls lower and lower, medical education becomes a farce, and the doors of entrance to practice stand wide open to any one who can raise a few hundred dollars.

At the recent examination for the Army Board, of thirty doctors who had been picked out from among the best graduates, and had been especially prepared for the army examination, only two reached the required standard. I believe myself that not twenty per cent of the graduates of medicine in America could pass the State examination required in Germany for license to practice. Humiliating tho it be, yet it is true that an American medical diploma has in itself no meaning, and that it will never be a true certificate of technical knowledge and education till it is supplemented by the law.

If such language can be appropriately used with reference to the medical profession, medical colleges, medical examinations, and medical diplomas, is it not worth while for all concerned—practitioners, professors, students—to inquire how far it is applicable to existing facts in similar dental relations. The national vice, the imperative desire to get on in the immediate present, it is not unreasonable to suppose, is as potent in dentistry as in medicine, and unless sedulously guarded against, the sequence will correspond, the standard will fall lower and lower, and dental education become a farce.—*Prof. H. C. Wood.*

Children's Teeth Among the Poor.

A CHILD of two years was brought by its mother because it had a sore mouth and could not eat. On examination we found a carious molar on each side of the lower jaw. The margins of the gums were deeply ulcerated, exposing the necks of the teeth on each side, above and below. That portion of the mucous membrane of the cheek which came in contact with the gums was also ulcerated, showing a dirty yellowish ground, and from these surfaces came a thin, sanious discharge. The child's breath was very offensive, and the tongue thickly coated.

On enquiry as to diet, we found it consisted principally of bread-and-butter, tea, beer, and meat. The mother had a child in her arms, of six months old, poor and sickly, who was sucking vigorously at a dirty bottle containing milk, tea, and water. The woman was comfortably clad, and said they always had plenty of food.

The trouble is from ignorance, not destitution, and it is our duty, wherever we find them, to point out that milk is the proper and natural diet for young children. For the first six or eight months it should be the only diet. All starchy foods are to be avoided. Later on, good bread and oatmeal with milk, well cooked vegetables and

gravy. Meat may be given, tho in very small quantities, when the temporary molars are through; and it should not be forgotten that bones are as necessary for exercising the young teeth of children as they are for the dogs. There is great variety in foods.—*R. D. Pedley, England.*

Care of the Teeth.

AT the meeting in Berlin last spring of the German Association of American Dentists, the best means of preserving the teeth were discussed, and Dr. Richter, of Breslau, said: "We know that the whole method of correctly caring for the teeth can be expressed in two words—brush, soap. In these two things we have all that is needful for the preservation of the teeth. All the preparations not containing soap are not to be recommended, and if they contain soap all other ingredients are useless except for the purpose of making their taste agreeable. Among the soaps the white castile soap of the English market is especially to be recommended. A shower of tooth preparations has been thrown on the market, but very few of which are to be recommended. Testing the composition of them, we find that about 90 per cent are not only unsuitable for their purpose, but that the greater part are actually harmful. All the preparations containing salicylic acid are, as the investigations of Fernier have shown, destructive of the teeth. He who will unceasingly preach to his patients to brush their teeth carefully shortly before bedtime, as a cleasing material to use castile soap, as a mouth wash a solution of oil of peppermint in water, and to cleanse the spaces between the teeth by careful use of a silken thread, will help them in preserving their teeth, and will win the gratitude and good words of the public."

EDITOR ITEMS:—On December 21, a lady entered my office leading a boy, who, while sliding, met with an accident, by which he had knocked out his four upper incisors. At the time they had been out from five to eight hours, and the hemorrhage had ceased. On a careful examination I found that not only were the teeth knocked out, but that the labial portion of the process was fractured and displaced. I replaced the process, and after syringing the sockets with a solution of phenol sodique, I washed the teeth thoroughly with the same and replaced them in their natural position, being careful not to crowd the fractured process out of place. I then selected some heavy linen thread, well waxed, and commencing with the twelve-year molar, braided them all together, and by so doing the entire arch was held firmly in place.

Every other day, for two weeks, I syringed them with a weak solution of phenol, and on removing the supports found them perfectly firm, and a thorough examination would fail to show that they had been knocked out and replanted or implanted. The patient suffered little after the operation, and for the past two weeks has experienced no inconvenience in eating the hardest food.

I have read of replanting a single tooth, but in that case you have the support of the adjoining sound ones. GEO. W. ALLEN.

Rockville, Conn.

About eight years ago I had occasion to build up two central incisors in the same mouth, one of which was an ordinary contour filling, with strong walls. The other had lost so much of the tooth substance that the red gum was plainly visible through the thin walls. This tooth I filled first with cement, then shaped the cavity in it just as I would were it all dentine, and leaving no part of the thin enamel unprotected by it except on the face edge. The gold was packed ordinarily, and that tooth is to-day in good condition, equal to its fellow-central in beauty and usefulness. Indeed, such combinations are made every day in my practice, and never do I fill a deep cavity, where the pulp is intact with either gold or amalgam, without first placing over the bottom a layer of some non-conducting filling material. Gutta-percha is often very suitable.—DR. D. D. ATKINSON, in *Southern Journal.*

Disease of the Silkworm.

PROF. HUXLEY.

THE silkworm has long been known to be subject to a very fatal, contagious, and infectious disease, called the muscardine. Audouin transmitted it by inoculation. The disease is entirely due to the development of a fungus, Botrytis Bassiana, in the body of the caterpillar, and its contagiousness and infectiousness are accounted for in the same way as those of the fly-disease. But of late years a still more serious epizootic has appeared among the silkworms, and I may mention a few facts which will give you some conception of the gravity of the injury which it has inflicted on France alone.

The production of silk has been, for centuries, an important industry in Southern France, and in the year 1853, it had attained such a magnitude that the annual produce of the French sericulture was estimated at a tenth of that of the whole world, and represented a money value of $20,000,000. What may be the sum which would represent the money value of all the industries connected with the working up of the raw silk thus produced, is more than I can estimate. The city of Lyons is built on French silk, as much as Manchester was on American cotton before the civil war.

Silkworms are liable to many diseases, and even before 1853 a peculiar epizootic, frequently accompanied by the appearance of dark spots on the skin, had been noted for its injurious effects. But in the years following 1853 the malady broke out with such extreme violence, that in 1856 the silk crop was reduced to a third of the amount which it had reached in 1853; and up to within the last year or two, it has never attained half the yield of 1853. This means not only that the many people engaged in silk-growing are $150,000,000 poorer than they might have been; it means not only that high prices have had to be paid for imported silkworm eggs, and that after investing his money in them, in paying for mulberry leaves and for attendance, the cultivator has constantly seen his silkworms perish and himself plunged into ruin, but it means that the looms of Lyons have lacked employment, and that, for years, enforced idleness and misery have been the portion of a vast population which, in former days, was industrious and well to do.

In 1858 the gravity of the situation caused the French Academy of Science to appoint commissioners, of whom a distinguished naturalist, M. de Quatrefages, was one, to inquire into the nature of this disease, and if possible, to devise some means of staying the plague. In reading the report made by M. de Quatrefages, in 1859, it is exceedingly interesting to observe that his elaborate study of the Pebrine forced the conviction on his mind that, in its mode of occurrence and propagation, the disease of the silkworm is in every respect comparable to the cholera among mankind. But it differs from the cholera, and so far, is a more for midable disease, in being under some circumstances contagious as well as infectious.

The Italian naturalist, Filippi, discovered in the blood of the silkworms affected by this disease, a multitude of cylindrical corpuscles, each about 1-6000 of an inch long. These have been carefully studied by Lebert, and named by him Panhistophyton, because in subjects in which the disease is strongly developed, the corpuscles swarm in every tissue and organ of the body, and even pass into the undeveloped eggs of the female moth. But are these corpuscles causes or mere concomitants of the disease? Some naturalists took one view and some another; and it was not till the French Government, alarmed by the continued ravages of the malady, and the inefficiency of the remedies which had been suggested, despatched M. Pasteur to study it, that the question received its final settlement, at a great sacrifice, not only of time and peace of mind of that eminent philosophor, but, I regret to have to add, of his health.

But the sacrifice has not been in vain. It is now certain that the devastating, cholera-like Pebrine is the effect of the growth and multiplication of the Panhis-

tophyton in the silkworm. It is contagious and infectious, because the corpuscles of the Panhistophyton pass away from the bodies of the diseased caterpillars, directly or indirectly, to the alimentary canal of healthy silkworms in their neighborhood; it is hereditary because the corpuscles enter into the eggs while they are being formed, and consequently are carried within them when they are laid; and for this reason also, it presents the very singular peculiarity of being inherited only on the mother's side. There is not a single one of all the apparently capricious and unaccountable phenomena presented by the Pebrine, but has received its explanation from the fact that the disease is the result of the presence of a microscopic organism, Panhistophyton.

Such being the facts with respect to the Pebrine, what are the indications as to the method of preventing it? It is obvious that this depends on the way in which the Panhistophyton is generated. If it may be generated by Abiogenesis, or by Xenogenesis, within the silkworm or its moth, the extirpation of the disease must depend on the prevention of the occurrence of the conditions under which this generation takes place. But if, on the other hand, the Panhistophyton is an independent organism, which is no more generated by the silkworm than the mistletoe is generated by the oak, or the apple tree, on which it grows, tho it may need the silkworm for its development in the same way as the mistletoe needs the tree, then the indications are totally different. The sole thing to be done is to get rid of and keep away the germs of the Panhistophyton. As might be imagined, from the course of his previous investigations, M. Pasteur was led to believe that the latter was the right theory; and guided by that theory, he has devised a method of extirpating the disease, which has proved to be completely successful wherever it has been properly carried out.

There can be no reason then for doubting that among insects, contagious and infectious diseases of great malignity are caused by minute organisms, which are produced from pre-existing germs, or by Homogenesis; and there is no reason, that I know of, for believing that what happens in insects may not take place in the highest animals. Indeed there is already strong evidence that some diseases of an extremely malignant and fatal character to which man is subject, are as much the work of minute organisms as the Pebrine. I refer for this evidence to the very striking facts adduced by Professor Lister, in his various well-known publications on the antiseptic method of treatment. It seems to me impossible to rise from the perusal of those publications without a strong conviction that the lamentable mortality which so frequently dogs the footsteps of the most skilful operator, and those deadly consequences of wounds and injuries which seem to haunt the very walls of great hospitals, and are, even now, destroying more men than die of bullet or bayonet, are due to the importation of minute organisms into wounds, and their increase and multiplication; and that the surgeon who saves most lives will be he who works out the practical consequences of the hypothesis of Redi.

CONCLUSIONS.

I commenced this address by asking you to follow me in an attempt to trace the path which has been followed by a scientific idea, in its long and slow progress from the position of a probable hypothesis to that of an established law of nature. Our survey has not taken us into very attractive regions; it has lain chiefly in a land flowing with the abominable, and peopled with mere grubs and moldiness. And it may be imagined with what smiles and shrugs practical and serious contemporaries of Redi and of Spallanzani may have commented on the waste of their high abilities in toiling at the solution of the problems which, tho curious enough in themselves, could be of no conceivable utility to mankind.

Nevertheless, you will have observed that before we had traveled very far on the road, there appeared on the right hand and on the left, fields laden with a

harvest of golden grain, immediately convertible into those things which the most sordidly practical of men will admit to have value—namely, money and life.

The direct loss to France caused by Pebrine in seventeen years, cannot be estimated at less than fifty million sterling; and if we add to this what Redi's idea, in Pasteur's hands, has done for the wine-grower and for the vinegar-maker, and try to capitalize its value, we shall find that it will go a long way toward repairing the money losses caused by frightful and calamitous war.

And as to the equivalent of Redi's thought in life, how can we over-estimate the value of the knowledge of the nature of the epidimic and epizootic diseases, and consequently of the means of checking or eradicating them, the dawn of which has assuredly commenced.

Look back no further than 1863, 1864, and 1869, in which the total number of deaths from scarlet fever alone amounted to ninety thousand. That is the return of killed, the maimed and disabled being left out of sight. The list of killed in the bloodiest of all wars will not amount to more than this! But the facts which I have placed before you must leave the least sanguine without a doubt that the nature and causes of the scourge will, one day, be as well understood as those of the Pebrine are now, and that the long-suffered massacre of our innocents will come to an end.

And thus mankind will have one more admonition that "the people perish for lack of knowledge;" and that the alleviation of the miseries and the promotion of the welfare of men must be sought by those who will not lose their pains in that diligent, patient, loving study of all the multitudinous aspects of nature, the results of which constitute exact knowledge or science.—*Medical Press.*

Call for an International Dental Congress in 1892.

AT the nineteeth semi-annual meeting of the New Jersey State Dental Society, held at the office of Dr. C. G. Watkins, Montclair, N. J., Saturday, Jan. 11th, the following resolution was passed:

Believing it for the good of the profession that we should hold an International Dental Congress in the year 1892, the New Jersey State Dental Society has appointed a committee to act in co-operation with like committees from other dental societies throughout the United States to consider this subject. We request all dental societies to appoint committees to meet at the Hoffman House, New York, on Tuesday afternoon, April 8th, to formulate plans for the holding of the First International Dental Congress.

We trust this will meet with approval and that all societies will appoint delegates at once. Yours respectfully,

S. C. G. Watkins, President; Geo. Emery Adams, Vice-President; Charles A. Meeker, Secretary; Geo. C. Brown, Treasurer; Fred A. Levy, A. R. Eaton, G. Carleton Brown, James G. Palmer, C. S. Stockton, Oscar Adelberg, B. F. Luckey, C. F. W. Holbrook, E. M. Beesley, Henry A. Hull, Worthington Pinney.

CHAS. A. MEEKER, Secretary.

It is a great help to me to have the handles of my instruments (pluggers and excavators), so formed that each has distinctive features, by which the eye can distinguish at a glance those representing different points; and I am confident that a little attention given to this idea will prove beneficial to all in saving time and relieving the eyes in a measure from the severe strain to which they are subjected, and which is intensified by selecting instrument after instrument with the point only as a guide. Since our success in practice depends so much on our eyes, any suggestion to relieve these important organs from unnecessary strain, in however slight a degree, furnishes a proper subject for consideration.—DR. A. M. HOLMES, in *Odonto Journal.*

It is just the journal for busy dentists, containing, as it does, so many devices, methods and hints, useful and helpful. Long live the ITEMS OF INTEREST.

Fort Atkinson, Wis. HILTON & HOLTON.

A Study of Dental Tissues.*

DR. W. J. BRADY, MINNEAPOLIS, MINN.

WE sometimes become so absorbed in our work on teeth, we forget there are other forms of the dental tissues inviting our study, and which would aid us in solving many questions concerning our own teeth if we were more familiar with them. Dental tissue does not always mean enamel, dentine, and cement, or at least does not mean these in the form in which we have to deal with them in daily practice.

Strictly speaking, dental tissues are those which directly compose part of a tooth, which does not include those other tissues which are sometimes made to do the service of teeth, yet cannot really be called teeth. However, we will take a little broader meaning of the term, and will consider at least a few of those closely allied tissues. One of the noticeable cases where another tissue takes the place of teeth is in the turtle. Here the jaws contain no teeth, but are covered with horny plates which do service in the limited mastication required. Also in whalebone, another tissue has become modified to assist in the work usually done by the teeth.

These tissues, tho not exactly alike, yet both are modifications of the same membrane as skin and hair. Most animals, however, even tho low in the scale of being, are supplied with some modification of teeth. This leads us to consider just how many dental tissues have been established, and which, if any, is subject to variation. The dental tissues proper are enamel, dentine, cement, pulp, and peridental membrane. Nasmyth's membrane is so unimportant we will leave it out.

Enamel is the simplest of the dental tissues in structure and development, and the least constant in its appearance as part of the tooth. The variations in structure in enamel are not sufficient to establish more than one kind of enamel. Enamel wherever found is always quite hard and variably brittle. So far as can be determined, it is always developed from a special organ—the enamel organ—by special cells, the ameloblasts. Enamel is always irregularly prismatic in structure, being made up of several layers of prisms or rods, which vary in the direction they pursue from straight to oblique lines or even wavy in appearance. Enamel varies in amount from a mere tip on a tooth to covering the entire crown. In many of the fishes that live on other fishes, and in poisonous snakes, the teeth or poison fangs are tipt with enamel, thus rendering them sharp, and quite suitable for piercing or holding the slippery prey. There has been much discussion whether enamel receives or is capable of receiving any nutriment after it is once formed.

Every shade of opinion and theory has been advanced, from Heitzman, who claims it is traversed by a minute reticulum, carrying nutriment to all its parts, to Sudduth and others, who maintain that when the lime salts forming enamel are deposited, they become crystalline in character, and that enamel is in reality a combination of minute crystals, and as incapable of receiving nourishment as rock itself.

Cement is the tissue next simplest in structure, being only modified bone. It is a little firmer than ordinary bone, and the same in structure. From anything we can judge by its structure, we judge there is but one kind of cement. It does not always form part of the tooth, being present only in those teeth which are provided with sockets. Its development has caused considerable discussion, but it seems to be settled that it is developed the same as bone by that special modification of the alveolar periosteum known as the peridental membrane. Cement seems to form a connecting tissue by which the alveolar tissue can grasp and retain the more hard and dense dentine beyond.

Dentine is always found in some form in every tooth, and in some of the lower orders of teeth it is the only tissue. It varies in structure and density, from

* Read before the Southern Minnesota Dental Society, 1889.

the coarse and soft osteo-dentine of the shark to the very complex and dense ivory of the elephant or hippopotamus. Dentine is divided into four classes :—osteo-dentine, vaso-dentine, hard dentine and plici-dentine. Osteo-dentine is so called from its resemblance to bone. In this class there is little regularity of structure, the nutrient vessels and other tissues finding their way through the meshes of hard tissue as best they can. Such dentine is found in the teeth of most sharks, and also in the teeth of the common pike and pickerel. Very little is known of the development of this kind of dentine.

Vaso-dentine is so called from being vascular, or having definite vessels. There is usually a central mass corresponding to the pulp, from which vessels proceed through the hard tissue. It is usually combined with a low grade of hard dentine. Tho this is a step higher in the scale, no more is known of its development than osteo-dentine. Hard dentine is the prevailing kind. It varies much in structure, tho it all contains the characteristic of having a central pulp from which fibrils radiate to all parts. These fibrils are elongations or processes of the formative cells —the odontoblasts—which form the outer layer of the pulp and by whose action lime salts are extracted from the blood and built up in the form of the tooth.

The dentine is thus built up in an open or reticulate form, varying much in density in different teeth. The openings or tubules left in the body of the dentine as it is developed, are only large enough to accommodate a small fiber from the cell, and this fiber is an elongated process of the odontoblast, thrown out and elongated and narrowing as the cell recedes from its original position. The development of hard dentine has given a large field for discussion, and some of the same points concerning nutrition of the formed dentine are similar to those concerning enamel, and have received attention from the same men, but they do not appear to have settled the subject as to whether formed dentine receives or can receive nutrition.

Plici-dentine is only a more complex form of hard dentine, and is rare. It differs from the ordinary only, that the pulp is so folded or complicated as to form in some instances two or more distinct channels or bodies.

The pulp is a dental tissue very complex in its organization from the fact that it contains a number of special cells whose entire character is not yet settled. These special cells—the odontoblasts—are definitely known to exist only in such pulps as are associated with hard dentine. It is conceded that their first and main office is to form dentine, but aside from this, questions arise as to their exact character. By some they are considered nerve cells as well as tooth builders. Other microscopists dispute this point, and so the war goes merrily on, and patients suffer through the odontoblasts from dull excavators or heated burs just the same. Pulps vary in their action in depositing dentine. In the teeth of some animals the dentine is continually forming, giving rise to teeth of continuous growth. Such pulps are called persistent pulps, and are to be found in the incisors of the elephant, and in all rodents or gnawing animals. In our own teeth it is thought by some that the pulp is not essential to their usefulness after the tooth is once formed. This seems to be the case in the instance of the elephant, in whose huge molar teeth or tusks the pulp is almost obliterated by entirely natural means as the tooth is formed.

About the peridental membrane there is as much doubt and discussion as about the nervous elements of the odontoblasts. It is advocated by Ingersoll that this is a double membrane; but this theory is not supported by later investigations. All seem to agree that it is a special modification of the alveolar periosteum, producing in some way the bone of the socket on one side, and cement on the other. It certainly is more than ordinary periosteum, but its exact character in all these respects will yet give histologists a chance to waste tons of argument and barrels of ink.

Yet we are learning, every year. Let us be persevering in our investigations.

Corrosion.

OFTEN the purest water is the most active in corroding and pitting plates, and this makes it probable that the active substance, in some cases at least, is air. It is well known that water is capable of dissolving a considerable amount of air; in fact, it is this absorbed air that enables fish to breathe. It is not so widely known, however, that the oxygen of the air is more soluble than the nitrogen. If a small quantity of water be shaken up in a bottle, it dissolves some of the enclosed air, and when this is afterward driven off by boiling, and analyzed, it is found to consist of oxygen and nitrogen in the proportion of 1 to 1.87, instead of 1 to 4, as in the natural air. Thus the dissolved air, being more than twice as rich in oxygen as common air, and being brought into more intimate contact with the metal by means of the water that holds it in solution, exerts a correspondingly more noticeable effect. It is probable, too, that water plays some other important action in connection with the oxidation of metals, for it has been found by recent experiments that pure oxygen will not combine with things that it has the greatest affinity for, provided it is perfectly dry. Even the metal sodium, which has an intense affinity for oxygen, may be heated in it to a very high temperature without combination, provided sufficient precautions are taken to exclude the slightest trace of moisture. It appears, therefore, that water plays a most important part in the oxidation of metals by air—a part, indeed, that we cannot explain, and that we really know but little about.—*The Locomotive.*

The Physician's Fee.—A decision was recently given in a suit for payment for services brought by Dr. Langeley, of New York, so says the New York *Medical Record.* Judge Brady, of the New York Supreme Court, decided that in an action by a surgeon for professional services, the plaintiff has a right to show that his standing in the profession is high, as bearing upon the question of the measure of his compensation. The judge further said: "There is also evidence tending to establish a custom or rule of guidance as to charges of physicians for services rendered, and which makes the amount dependent on the means of the patient—his financial ability or condition. This is a benevolent practice, which does not affect the abstract question of value nor impose any legal obligations to adopt it, and cannot be said to be universal. Indeed, there does not seem to be any standard by which, in the application of the rule, the amount to be paid can be ascertained. Each case is under the special disposition of the surgeon or physician attending, and he is to decide as to the reduction to be made on account of the circumstances of his patient; and therefore, when the amount is in dispute, it follows that it is to be determined by proofs to be given on either side. The measure of compensation must be controlled much by ability in all the professions, and the service rendered by its responsibilities and success.—*Cincinnati Med. News.*

To avoid displacement of small pieces in soldering by frothing of borax, the *British Journal of Dental Science* advises the addition of a small quantity of gum arabic to the flux.—*Dental Advertiser.*

A better way is, to first burn the borax.—Ed. ITEMS.

The Legitimate uses for Zinc-Phosphates are lining cavities, strengthening frail walls, largely filling such cavities as are to be partially filled with gold on the score of expense, or with amalgam, on the score of easy removal and possible contingencies; or for durability of filling, combined with non-conductivity, maintenance of color, etc., and for increased adhesion of fillings in saucer-shaped cavities, which are to be filled with combination fillings of zinc-phosphates and amalgam; by such I mean fillings in which the two materials are introduced at such times as both are plastic, and thus the adhesion of the zinc-phosphate and the resistance of amalgam to attrition are utilized in one filling.—*Dr. Flagg.*

Another Collegiate Dental Department.

THE new Dental and Pharmaceutical Building of Meharry Medical Department of Central Tennessee College, Nashville, Tenn., was dedicated November 20.

Addresses were delivered by W. H. Morgan, M. D., D. D. S., Dean of the Dental Department of Vanderbilt University; ex-President Rutherford B. Hayes; ex-Postmaster-General D. M. Key; Rev. J. C. Hartzell, D. D., Corresponding Secretary of the Freedmen's Aid and Southern Educational Society of the Methodist Episcopal Church; Rev. C. S. Smith, M. D., of the A. M. E. Publishing House, Nashville; and Dr. J. B. Lindsley, Secretary of the Tennessee State Board of Health.

The building is constructed of brick with the exception of the first story which is of stone. It is sixty feet long and forty feet wide. The first story will contain a dental laboratory, and a chemical laboratory for analytical work; the second a dental infirmary, a waiting room and two rooms for pharmacy; the third and fourth stories are occupied by an amphitheatre capable of seating two hundred students, with a skylight overhead, designed for the operating table. There is also a room for the accomodation of patients, a faculty room and a museum. The dental infirmary is thirty-seven feet long, twenty-four feet wide, wainscoted and paneled in oak, and lighted by twelve large windows.

The School of Dentistry was organized for the education of colored students, and has been in operation three years, the graduates of which have been well received by the dental profession, and are doing good work. It is a member of the "National Association of Dental Faculties," and its diplomas are recognized by the "National Association of Dental Examiners."

Operative Dentistry, by Thomas Fillebrown, should be in every dental library. It contains the advanced thoughts of the profession on this subject; and that dentist who thinks he has nothing important to learn from such a work must be either very far in advance of his fellows, or not conscious of his defects. No one will agree with all that is said in this book, and no one will put it down after reading it without a sense of improvement.

The fact that "The National Association of Dental Faculties" have adopted it and made it a text-book in all the dental schools of the country, is a flattering recommendation. We would, therefore, especially recommend it to students. It is published and for sale by P. Blakiston, Sons & Co., Philadelphia, at $2.50, and for sale by The Wilmington Dental Manufacturing Company, 1413 Filbert street, Philadelphia.

NASHVILLE, Tenn., Jan. 23d, 1890.

T. B. WELCH, M. D., VINELAND, N. J.

DEAR SIR:—In behalf of the students of Vanderbilt Dental College, I write to express our *sincere thanks* for your interesting and instructive monthly, which you have so kindly sent us since last October. Your valuable periodical has been of great assistance to the entire class; and your liberality is gratefully acknowledged. Yours truly, A. P. BROWN, Secretary.

INDIANAPOLIS, IND., Jan. 21, 1890.

Wilmington Dental Manufacturing Company, Phila., Pa.

GENTLEMEN:—When I made the announcement to the Senior class of our college that your company would furnish to the graduates the ITEMS one year, the proposition was received by a vote of thanks to you. Our boys have not been slow at any time in saying the ITEMS is their Journal, and each month they impatiently ask for their ITEMS.

A resolution was made by our College Association extending to your company our hearty thanks, and assurances of our hearty support in the future, and we wish for the ITEMS, and the gentlemen connected with it, a "happy and prosperous New Year." MISS L. TEVIS, Corresponding Secretary.

A Dentist Wanted.

DR. T. B. WELCH, Vineland, N. J.:

For any honest, competent dentist desiring a situation, and willing to make a venture by coming South, there is a large field of practice here for some good, experienced dentist, with a good supply of suitable instruments for all purposes of the profession, and who is willing to visit neighborhoods or families to do their dental work. There is only one dentist that I know of in all Union county, and there is much complaint of his old, dull, filthy, unsuitable instruments. All dental work is considered high here. Gold filling, $1.50 to $3.00 each; plates of rubber and similar material, $12 00 to $20.00 each; board from $8.00 to $12.00 per month.

Address Miss E. A. GARNER, Skull Shoals, Union Co., S. C.
By Gaffney's City,

Were not the subject too serious for a joke, it might be suggested that in Dublin, with its Dental Hospital and very active *corps dentaire*, there were simpler methods of curing toothache than killing oneself, yet poor Dinnage seems not to have known of them. For recently there was an inquest held before Mr. R. Blagden, at Monk's Common, Nuthurst, touching the death of a young man, aged eighteen, named William Dinnage. It appeared from the evidence that the poor fellow suffered the most excruciating torture from the toothache for the last four or five months, during which time he was observed to cry, day by day, for hours together. The jury found that the deceased committed suicide while laboring under temporary insanity induced, the coroner stated, by the torture to which he was subjected.
—*Dental Record*, Eng.

Mechanical Dentistry.—If each of us would strive to do better and more artistic work, we can do much to keep that part of our profession out of the hands of the Cheap-Johns, and elevate it to the position it should occupy. In looking over the dental journals and society transactions for the last three or four years, one will be convinced that the tide has already turned; and the introduction of crown and bridge work is bringing it about. The man who to-day is not doing crown, and, in favorable cases, bridge work, is behind the times, and will get left unless he moves forward. When familiar with the working of metals in crown and bridge work, it is but a step to gold-plates, continuous gum-work, or the many combinations that come in to make our work more durable and artistic.—*Dr. H. T. King, Fremont (Neb.) Ex.*

Root-Filling.—The first thing, necessary, after the pulp is removed is to get rid of as much of the contents of the tubuli as possible. For this purpose there is nothing better than heat. Dry the tooth with the hot-air syringe and then pass up a root-drier, after which treat the root antiseptically. I am in the habit of filling always with oxychloride of zinc, because of the antiseptic character of the chloride. It will prevent further decomposition as far as anything I know of. If the dentine is made perfectly antiseptic, a point which is too often overlooked, no further trouble need be apprehended. Where the pulp has been long dead, and the tubuli are filled with dead and decomposing organic matter, I inject peroxide of hydrogen, drying the root thoroughly first. The peroxide will reach it readily and drive it out, the injections being repeated as long as there is any indication of decomposed matter. —*Dr. W. W. Allport.*

I always keep, ready for use, a 6-ounce bottle of potassa alum water; made by adding two or three teaspoonfuls of the potassa-alum to the bottle of fresh water. Use equal quantities of this and fresh water for mixing your plaster. It hardens the plaster, and keeps it from shrinking; and after vulcanizing, your plaster will *not stick to the rubber.*—DR. PENNY, in *Archives.*

The Plan of a Dental Office.

EDITOR ITEMS:—Your new title page is a dandy. Your new dress inside is a marked improvement—a good, healthy improvement, and we are all glad to see it. May your future prospects ever be as marked as your past record.

There is one subject I should like to see discussed; it is the arrangement of the office. For instance, I am about to plan a new office—What is the best and most convenient way to plan the rooms? How many and how grouped? What size, and what their best aspect to the sun—that is, supposing you can have your own way?

There are many plans of homes in our weekly papers. Why not have a plan or two of convenient dental offices? The one illustrated on the cover of the ITEMS is much too elaborate for the general run of country offices. I really wish there might be something said on the subject. J. A. ROBINSON.

Accepting New Ideas.—No observant person can fail to be struck with the fact that, after all, the acceptance of new ideas and new methods is of really slow growth, limited at first to a few receptive minds; that the mass of mankind are not easily changed from the habits and methods to which they have become accustomed. To them appears as the highest wisdom the foolish and satisfied philosophy embodied in the couplet:

"Be not the first by whom the new is tried,
Nor yet the last to lay the old aside,"

forgetful that were it adopted by *all* there would be an end of progress.—*Cosmos.*

Another Use for the Logan Crown.—Last spring a lady came in with her upper artificial teeth broken. She had dropt them and broken the right lateral off. She was in such a hurry to leave the city that I had no time to vulcanize in a new section. So I ground the remaining part of the tooth to the gum, then with a diamond drill cut a hole through both sections and plate, selected a Logan crown, and carefully ground it to fit, allowing the pin (after taking off the corners to fit the hole) to project about one-sixteenth of an inch, then with a fine saw split the pin for a short distance, and set it in oxyphosphate. After hardening, I spread the split pin, and burnished into slight depressions cut in each side of the plate with a small bur.

Norfolk, Va. RANDELL BARRETT.

A Dentist 95 Years Old, in Rockland, Maine, is in extreme poverty. To prevent his being taken to the almshouse, T. E. Tibbetts, of that town asks remittances to give him support for the few remaining days he has to stay on earth. Brethren, send a few dollars to Dr. Tibbetts for this poor man. Dr. Wm. McDavis, President of the State Dental Society, says it is a particularly worthy case.

The Smoke of Hyoscyamus Niger in Toothache.—A Russian practitioner recommends the use of hyoscyamus seeds for toothache. His plan is to burn the seeds and to convey the smoke through a little paper tube to the hole in the tooth. He declares that in nearly all cases one application, or at most two, will suffice to cure the toothache.—*Lancet.*

The average of a horse's life is twenty-five years.

DEAR DOCTOR:—I get so many *little* things out of the ITEMS that are of interest and use to me, I thought, perhaps, I could interest some one else. Here is a case in practice: I extracted both lower central incisors for a babe eight months old, the only teeth visible at the time. In due time she erupted the rest of her temporary teeth.

At the age of eight years the permanent centrals came into place without any "crowding," a "perfect fit." H. R. SACKETT.

Chicago, Ill.

Uncleanliness is one of the principal local causes of early decay. When food is allowed to remain between or about the teeth, where the enamel is defective, or the secretions are vitiated by stomach derangement, fermentation rapidly takes place, and the acids formed as a consequence soon produce caries. Among the children of the poor a tooth brush is seldom known; among those of the middle classes it is not used. In the former the parents never cleanse their own teeth; among the latter the habit is commenced too late. People seem to have an idea that it is unnecessary to teach a child to clean the teeth. "I did not think my child was old enough" is the usual reply to a question on this subject. It is necessary to insist on the cleansing of a child's teeth just as soon as they appear. If any particular time is chosen let it be after the last meal at bedtime. This may appear trivial, but you must remember much of the mischief is done in the night.—*R. D. Pedley, England.*

Method of Reducing Dislocation of the Jaw.—Dr. Gerin, in a case of unilateral dislocation of the jaw, employed the following method: The patient being seated, the physician stands behind him, and, with the left hand placed on the patient's forehead, he fixes the head firmly against his chest. A compress folded to several thicknesses is placed over the lower teeth on the affected side. The surgeon then introduces his thumb between the dental arcades in such manner that the palmar surface of the thumb rests on the molar teeth, while the other fingers grasp the horizontal portion of the lower jaw. Then bending a little forward over the patient he presses on the maxilla, combining with this downward pressure a slight backward movement. Almost immediately the bone is returned to its articular cavity. —*Bulletin General de Thérapeutique.*

The Dental Law of Minnesota is among the best of the various States: No person can practice dentistry without laying himself liable to the penalties of the law, unless his certificate of enregistration is recorded.

Unless the certificate is recorded within six months of its issuance it becomes void and cannot thereafter be recorded.

The report of the State Examiners is complete, and they seem to be determined to do their duty without fear or favor.

R. I. Pearson & Co., Kansas City, show enterprise and popularize their Dental Depot, by sending to very many dentists a convenient dental memorandum book. We have just received one with our name nicely stamped on the morocco cover.

The Supreme Court of Minnesota has decided that the Dental Law of that State is Constitutional. Four dentists, practicing in that State in defiance of the State Law, have been convicted.

The Johns Hopkins Hospital, of Baltimore, was formally opened May 7. Its construction was begun more than ten years ago, and the cost has been over $2,000,000. This institution is one of the finest and most complete in the world, embracing seventeen buildings and covering four acres of ground, surrounded by ten acres more, which is laid out in a beautiful park.

South Dakota has just enacted a Dental Law—or rather amended their previous one—that is one of the best yet devised. Well, if those entering the profession will come up to the requirements of these various State laws, dentists and people will both be benefited.

The Fiftieth Commencement of the Baltimore College of Dental Surgery will be held on Thursday, March 20, 1890. All graduates and friends of the College are invited to be present.

Trials.

SOME of the most trying experiences in a dentist's life are caused by people who expect a great deal more than it is possible to do. One of these is, that many people expect to get a set of artificial teeth, that, a few weeks after insertion, will do as good service as their natural teeth and give no more trouble in use. They are always disappointed, and hold the dentist responsible for the failure. The sooner it is understood that no artificial substitute for any of nature's organs can do the service required of it as well as the natural organ it replaces, the sooner people—many people, at least—will cease to worry the dentist with the troubles they experience in wearing artificial teeth.—*Dr. D. V. Beacock, Dom. Jour.*

Sunshine as a Medicine.—Sleepless people—and there are many in America—should court the sun. The very worst soporific is laudanum; the very best is sunshine. Therefore, it is very plain that poor sleepers should pass as many hours of the day in the sunshine and as few as possible in the shade. Many women are martyrs and do not know it. They shut the sunshine out of their houses and their hearts, they wear veils, they carry parasols, they do all that is possible to keep off the subtlest and yet the most potent influence which is intended to give them strength and beauty and cheerfulness Is it not time to change all this, to get roses and color in our pale cheeks, strength in our weak souls? The women of America are pale and delicate. They may be blooming and strong, and the sunlight will be a potent influence in this transformation.—*Evening Telegraph.*

Painless Dentistry is a Misnomer.—There is, in the nature of the case, no such thing. We, as dentists, are working on as highly organized tissue as there is in the body with implements no softer than steel. Then how can we, or our patients, be deceived into believing that operations on these organs can be made absolutely painless? It's a mistake. Pain is manifold, in kind and degrees. Mental suffering is, many times, far more painful to bear than physical suffering; and thus our patients suffer when they think of paying us a visit, long before they take a seat in the chair, which focalizes and intensifies their agony. The first thing to allay is this dread; this mental monster must be laid low, through sympathies and kindness, and assurance that the Philistines are dead, and friends are near. Gentleness, quietness; let everything that pertains to the operation be kept in the rear. Have something patients can see that will amuse or delight them; let sunshine into your operating-room; be cheerful yourself.—*Dr. G. A. Bowman.*

Bridge Work.—Dr. King says: I have removed bridges that had been put on by the very best bridge builders, and in regard to cleanliness, I have actually been obliged to hold my nose during the removal. The odor in some cases is unbearable. Besides this, we often have peridental inflammation resulting from irritation in wearing bridges. I advocate removable bridge work.—*Dental Advertiser.*

Florida has now a State District Dental Society. They organized November 12th, at Ocala, with the following officers: Dr. G. H. Perrine, President; Dr. T. Matherson, Vice-President; Dr. Pike Adair, Secretary and Treasurer; Dr. D. A. Thomason, Corresponding Secretary. Executive Committee: Dr. James Chace. Dr. J. C. Perrine, and Dr. T. F. Spencer.

One of the most beautiful advertising pages we have ever seen is that of Alpha's Gold Pellets.

An alloy that expands in cooling and is suitable for repairing cracks in cast iron is made with nine parts of lead, two of antimony, and one of bismuth.

The Longest Tooth.

ITEMS OF INTEREST:—Yes, I have a canine tooth, larger than Dr. Thatcher's, that I extracted for a gentlemen a few days since. It is one and five-sixteenths inches in length and one inch in circumference.

In 1882 Dr. Jackson and I extracted an upper canine, for a gentleman, measuring over one and a half inches. (It required our united strength to remove it.) Next! L. M. RAUB.

I notice some large teeth in December ITEMS. I extracted a right upper cuspid, two weeks ago, which measured one and three-eighths inches in length, and one and one-eighth inches in circumference. And yet the tooth is not of its full length, as the cusp is worn off at least one-sixteenth of an inch. BASCOM BLACK.

Angola, Ind.

Supernumaries.

EDITOR ITEMS:—I see in the January ITEMS a report of a case of a young lady who has five well developed incisors and the question is asked, Are there many such cases on record? I think not, tho I have a model of a young man's mouth, aged 27, with six perfectly developed incisors, and the teeth are in no wise crowded. It is the only case I have ever seen in thirty years' practice.

San Antonio, Texas. J. E. BRUDING.

The Temporary Teeth.

MUCH as the public may recognize the value of conservative dentistry, it is astonishing what little care is taken of the temporary teeth. Seldom does the vigilant eye of a mother detect incipient caries, and advice is seldom sought till it is too late. When we remember how lasting are early impressions, it can scarcely be a surprise that children will avoid all future visits to one they consider an enemy. They must be shown by experience that the dentist is their friend.—*R. D. Pedley, England.*

DR. T. B. WELCH:

MY DEAR DOCTOR:—Allow me to congratulate you on the beautiful and interesting January number of the ITEMS OF INTEREST. I have never subscribed for it heretofore, but if this number is a sample of what it is to be for the coming year, I cannot afford to do without it. Therefore kindly find enclosed one dollar as my subscription for 1890, and believe me yours very truly, DWIGHT SMITH, D. D. S.

3 East Forty-seventh street, New York City.

Annealing Gold.—My apparatus for annealing consists of a tray of the finest thin sheet steel, with symmetrical indentations for holding the pellets, so that they may not come in contact with each other. Beneath this tray is a small Bunsen burner, to which it is attached, the tube not quite as large as that of a common gas-burner. The relative supply of gas and air to this is so arranged that the flame can be turned down to the smallest point. The flame which I ordinarily employ is not more than an inch high, and proportionally small, while the combustion is so nearly perfect that it is difficult to tell by sight whether it is lighted. It gives me an average temperature for annealing of about 700 degrees F. Some foils will anneal sufficiently at 600, while others require 800. Gold at a cherry-red heat is about 2,000 degrees F.—DR. BARRETT, in the *Review.*

Young America and the Faith Doctor.—A Scranton mother, whose son had toothache, took him to a faith healer. "Look me in the eyes," said the doctor, fixing a fascinating gaze on the weeping youth. "Now your toothache has entirely disappeared. You haven't a bit of toothache about you." "You lie! I have," yelled the boy, with a fresh howl. The mother then took him to a dentist.

For Our Patients.

Our Meat and Drink.

SO it has come to this, that men
Must dine no more on flesh again,
The chances being nine to ten—
Tuberculosis.
The thought's enough to, there and then
Cause cyanosis!

I wonder what is safe to eat!
Swine seems as bad as butcher's meat,
For porcine flesh they say's the seat
Of trichinosis!
And even tea, that household treat,
Brings on neurosis.

They are all tabooed—well, let them go!
What tho it brings my system low,
And fond friends cry in tones of woe:
"He's got chlorosis!"
Impoverished blood is less a foe
Than scrofulosis.

Farewell my modest evening tea!
Microbic flesh, depart from me!
Seductive beer it may not be!
Who wants cirrhosis?
E'en sugar's not suspicion free
There's tooth necrosis.

No more the cherished hope I'll hug
That all this cry is mere humbug;
Henceforth I'll feed on "flesh that's dug."
If plants have "oses,"
I'll swill some antiseptic drug
In treble doses.

—E. P. W. GLASGOW, in *Hops. Gazette.*

Mr. Ferguson who had been trying to woo sleep while suffering with a toothache, hurriedly left his bed, and, in trying to light the gas, stumbled over a pail of water he had used to soak his feet before retiring.

"Thunder and lightning!" he exclaimed, while struggling to regain a perpendicular position.

"For goodness sake, what is the matter, my dear?" said his wife, who was awakened by the noise of her husband's fall.

Mr. Ferguson, forgetting he had left the pail of water there himself, snappishly replied:

"Some infernal imbecile, or idiotic fool, without as much brains as a mosquito, put a pail of water in the middle of the room, right under the chandelier, and I almost broke my neck by falling over it."

"Why, Samuel!" the wife replied, "I should think you would have more self-respect than to call yourself such names before your wife and children."

"Oh, darn self-respect and all such nonsense," said Mr. Ferguson, whose memory had been thus refreshed, as he started off to enjoy the festivities a playfully inclined molar affords.—*Practical Dentist.*

Want of Sympathy.

THE following little story is a sad warning to those who would treat children too harshly. We have seen it in dentists and parents when they would force children to have dental work done. Force may sometimes be necessary, but should always be accompanied with great discretion and tenderness, and taking very carefully into consideration the temperament, moral susceptibilities, and nervous strength of the child.

"Kiss me, Mamma, I Can't Sleep."—The child was so sensitive, so like that little shrinking plant that curls at a breath and shuts its heart from the light. The only beauties she possessed were an exceedingly transparent skin, and the most mournful, large, blue eyes.

I had been trained by a very stern, strict, conscientious mother; but I was a hardy plant, rebounding after every shock; misfortune could not daunt, though discipline trained me. I fancied, alas! that I must go through the same routine with this delicate creature. So one day, when she had displeased me exceedingly by repeating an offence, I was determined to punish her severely. I was very serious all day, and, upon sending her to her little couch, I said: "Now, my daughter, to punish you, and show you how very, very naughty you have been, I shall not kiss you to-night."

She stood looking at me, astonishment personified, with her great, mournful eyes wide open—I suppose she had forgotten her misconduct till then—and I left her with big tears dropping down her cheeks, and her little red lips quivering.

Presently I was sent for. "Oh, mamma, you will kiss me; I can't go to sleep if you don't!" she sobbed, every tone of her voice trembling; and she held out her little hands.

Now came the struggle between love and what I falsely termed duty. My heart said, give her the kiss of peace; my stern nature urged me to persist in my conviction that I must impress the fault upon her mind. That was the way I had been trained, till I was a most submissive child; and I remembered how I had often thanked my mother since for her straight-forward course.

I knelt beside the bedside. "Mother can't kiss you, Ellen," I whispered, though every word choked me. Her hand touched mine; it was very hot, but I attributed it to her excitement. She turned her little grieving face to the wall. I blamed myself as the fragile form shook with self-suppressed sobs; but, telling her, "Mother hopes little Ellen will learn to mind her after this," left the room for the night. Alas! in my desire to be severe, I forgot to be forgiving.

It must have been twelve o'clock when I was awakened by my nurse. Apprehensive, I ran eagerly to the child's chamber; I had had a fearful dream.

Ellen did not know me. She was sitting up, crimsoned from the forehead to the throat; her eyes so bright that I almost drew back aghast at their glances.

From that night a raging fever drank up her life; and what, think you, was the incessant plaint that poured into my anguished heart? "Oh, kiss me, mamma—do kiss me; I can't go to sleep. You'll kiss your little Ellen, mamma, won't you? I can't go to sleep. I won't be naughty, if you'll only kiss me! Oh, kiss me, dear mamma; I can't go to sleep."

Holy little angel! she did go to sleep, one gray morning, and she never woke again—never. Her hand was locked in mine, and all my veins grew icy with its gradual chill. Faintly the light faded out of the beautiful eyes; whiter and whiter grew the tremulous lips. She never knew me; but, with her last breath, she whispered, "I will be good, mamma, if only you'll kiss me."—*Texas Health Journal.*

It is said that in Maine, where most of our wooden toothpicks come from, one machine will make five thousand in a minute.

Just for the Fun ov It.

OUR marked letters have the following sounds:
āte, ēte, īte, ōde, ūse; ăre, âll, fûl, môve.
R has the vowel sound of er, and the cousonent sound of re.
A, b, c, I, o, u, y, and r, are sometimes used a words, as: "Y, to be shūr, I c I o u a kâl now u r mī nabr."
Where only consonents are sounded, only consonents are used, as: "I ofn brnd mī lādlz when I lābrd in metlz."
When the sound of a vowel is obvious, no mark is used, as al instead of âl, ne instead of nē, no instead of nō, u and ur insteab of ū and ūr.

Hav u a fū minits lezhūr?

Wel, then, sit down with me a moment, and let us tâk a litl about Simplifīd Speling.

Whī not hav it? Prhaps u hav not thot ov it, or evn sēn it. If u hav not studid it a litl, it must lûk kwēr; and u wil fīnd it sumwhot difikult to rēd. But get familiar with our markt letrz and rēd this ovr agen wuns or twīs, and u wil not fīnd it difikult. Evn a chīld kan rēd it aftr a fū ourz studi. And it iz ritn az ezili az it iz red. It iz onli uzing the letrz rēli propr in the soundz ov wrds. U hav no silent nor misplast letrz to remembr, and, — wel the wrdz sēm to spel themselvz.

If u wûd līk, onli for the fun ov it, to rīt in simplified speling to sum ov ur frendz, just send us ten sents for a pakaj ov nōt papr with the rôlz printed on ēch shēt.

This iz the wa we kan plezentli help to māk simplifīd spelīng populr; and to māk it populr iz to māk it dominent. Thr wil b no mōr hard speling then. In fakt, evn children kan then skip speling, and go rīt to rēding and rīting.

Our populr wa ov speling iz fôlish,—thr iz no siens or filosofi in it. Thr iz nuthing to kumend it. It iz simpli the labr ov remembring a lot ov letrz prōmiskūusli thrōn togethr. Thr iz no rôl nor system to gīd us; so that thōz having the best memori r the best spelrz. We sa the letrz sēm to b thrōn togethr,—sumtīmz tha r srtinli thrōn togethr veri lôsli,—without eni referens to ordr, konsistansi or sound. For instans, hô wûd think ov phthisic speling tisik? "No, sez a lrnd profesr," "u ma kâl it tisik or thisis or tisis." Az the Duchman sez, "U pāz ur munish und û tak û chois." U rīt s l o u g h and thēz lrnd wunz wil tel u u hav spelt slow. O, no; I beg ur pardn, u hav spelt sluf—no it spelz ēthr u plēz. Just get sum wun to run round Robin Hôd'z barn and skatr u o a g t u. Pik them up almost eni wa and tha tel us we hav spelt ot. But az it hapnd that sum wun, at sum time, pikt them up in the ordr, or rathr, in the disordr ov o u g h t, and uthrz imitated him til it bekām a kustm, "Tha sa" that iz the rīt wa. But whot do u do with the a? "O, kroud out wun ov the uthr letrz for it; the speling wil b just az gûd. Trī it in the plas ov o." Isn't this sili? U wûd b laft at if u rōt "The hors nād." But if u wil thro into a pīl n i e h e g d, and thro awa the veri letr, a, u nēd, "tha" wīl tel u that spelz nād. Yes, that iz whot the hors did, he "neighed."

O, I c u r smiling? It iz enuf to māk u smīl. And yet our būtiful languaj haz bēn brdend with this grotesk and inapropriāt klōthing sins its infansi,—simpli bekâz its mama put it on when it waz a infant? It iz a shām we hav not chanjd its klōthz. How wûd u and I lûk with our babi klōthz on?

A petishun haz just gon into Kongres to hav our speling improved and a Komiti haz bin apointed.

"'TIS in the advance of the individual minds
That the slow crowd should ground their expectation,
Eventually to follow—as the sea
Waits ages in its bed, till some one wave
Out of the multitude aspires, extends
The empire of the whole, some feet, perhaps,
Over the strip of sand which could confine
Its fellows so long time; thenceforth the rest,
Even to the meanest, hurry in at once." —*Browning.*

All About an Aching Tooth.

GEORGE WASHINGTON COLEBY and Bill Grant Thompson were coal-black darkies. They had been employed all summer as waiters on a Sound steamboat, and at the end of the season were in possession of enough cash to indulge in a little extravagance. George, being exceedingly fond of music, and having a desire to understand it practically, purchased a banjo; Bill, thinking more of personal adornment than of melody, invested in a showy, gilded watch with a massive chain and dependent trinkets. The two coons were now happy. George "played" the banjo while Bill "kept time" during the performance, occasionally indulging in the "light fantastic step," to vary the exercises. But happiness, at best, is of a fleeting nature, and the ecstacies enjoyed by these two darkies were cut short by an untoward event. George was attacked with a provokingly distressing toothache. One of his molars, catching its inspiration, doubtless, from the banjo, became musically inclined. It played persistently, and George, in spite of his will, responded to its performances by spasmodic twitchings of his anatomy. As the two occupied one room, and the same bed, Bill's comfort and sleep were compromised by a sort of reflex action. He no longer experienced supreme satisfaction and pleasure in the critical examination of his chronometer and listening to its ticking. Finally, Bill's patience became exhausted, and in an agony of mind, he exclaimed:

"What for you don't go to sum dentist an git dat ar toof out 'stead ob howling 'round and keep'n a feler 'wake all de nite true?"

George did not respond to this wholesome admonition of his fellow lodger, and he continued his rapid strides and grotesque actions as if no one had spoken to him, when Bill followed up his expostulations.

"How you 'spect Ize go'n to sleep wen you is run'n all ober de flo and mak'n groanens like a coon kotched in a rat trap? Diss yar chile wouldn't be sich a fool as dat no way you kin fix it, now mind what I is 'tellen you. If dat are toof wuz in my mouff, it would be made to git up and git quicker dan a mussqueter could wink his eye."

"I bet you five dollars diss berry minnit dat you am too big a koward to do enny ting ob de kine," said George snappishly.

"I take dat ar bet," shouted Bill, jumping at the same time from his bed; "dare am no koward in diss yar niggah, and now you jist put up or shut up."

As neither darkey could muster together the sum mentioned, it was determined that the watch and banjo should be deposited with the colored barber having a shop near by, in lieu of cash, which was done as soon as the knight of the scissors made his appearance at his headquarters. It being understood that in the event Bill should have an aching tooth at any future time, and failing to "hab it 'stracted," the watch and the banjo both should be delivered over to George as his individual property. Bill, having many teeth in which were chasms reaching to living nerves that protest when their territory is encroached on, had not long to wait before he could demonstrate to his friend George the falseness of the charge of cowardice he had made against him. In fact, no sooner had George's tooth become restful and quiet, when one of Bill's molars became angry and demonstrative. Bill could not conceal the effects of the pain, which made every limb in his body tremble like a leaf shaken by the wind. He was therefore reminded of his bet.

"Ef yo don't have dat are toof jerked out now," said George, with great rapidity of utterance, "de watch am mine and don't you forgit it. An I want you to show it to me and de barber too—dats what's de matter."

On hearing this, Bill started on a double quick for the nearest dentist. Seating himself in the dental chair, the knight of the forceps was about to apply his instrument to the offending tooth, when the frightened darkey exclaimed:

"Hold on, hold on dar, boss, dat ar niggah kin take de watch—I'll gin in." Saying which, he hurriedly made his exit, leaving the bewildered dentist to conjecture what it was all about.—*The Practical Dentist.*

Editorial.

How is Food Transformed into Living Tissue?—IV.

LET us look from the simplest form of animal life up through some of the advancing stages to man. For instance, the water polyp is nothing more than a pouch with an opening; in the worm we find this pouch elongated into an intestine, with a mouth at one end and an anus at the other. We come a little higher in the animal scale, and I find the intestine divided into a stomach and a respiratory appendage. Then in the fish, of the lower order, the gill is added for respiration, and behind this a stomach, a little better defined than in the last order. As we ascend in fish formation, we find gill arches behind the gill openings, and in these gill arches, lip, cartilage and jaw skeleton. Still higher in the scale of life, we find added the swimming bladder growing out of the larynx, and from the stomach pouch grows the liver sac. All these are connected with the digestive intestine; till still further up in organization we see the compound or multiple liver gland. Then, as we ascend, the swimming bladder becomes a modified lung, a full developed larynx appears on the upper end of the trachea, and from the lower section of the intestine appears the urinary bladder. Coming up a step higher, we find the horizontal palate roof dividing the primitive mouth, so that we have a nasal cavity, and a mouth of a higher order, while at the other end of the alimentary canal appears the urinary and the genital apertures. Finally, we come to man, where the alimentary canal consists of two sections, eight cavities and thirty-nine organs.

The great diaphram divides the body into these two sections—the lower and the grosser, and the higher and more refined and refining. It is in the upper that the blood is changed from venous to arterial, and from whence come the sensory and the motor nerves, and as on the throne of these laboratory contrivances and changes, we finally ascend to the seat of the mind and spirit.

The characteristics and work of the eight cavities are well worthy of special description. But we must not go into special details. They should be made the particular study of your leisure hours.

You are supposed to be familiar with the first—the cavity of the mouth. Yet it is probable there are many dentists who have directed their attention so exclusively to the teeth—and these merely as bones to be filled or extracted—that they have little idea of the beautiful and finely wrought surroundings of these organs; the wonderful structure and movements of the muscles of the lips, mouth and jaw; the peculiar construction and mobility of the tongue; the nice adjustments and attachments of the bones; the ramification and uses of the glands; the mysterious sounding-board called the palate, and the delicate composition and complexity of the modulating uvula.

The second, or nose cavity, is hardly less interesting in the construction, usefulness and extreme sensitiveness of its delicate Snyderian membrane, with its living, almost intelligent little tubes and mouths and villa for the sense of smell, and the various ramifications of cavities, muscles, glands and network of tissue, nerves and bloodvessels.

In each of the divisions of the throat, which is considered the third cavity—the isthmus, tonsils, pharynx and eustachian tubes—we find a lesson not easily exhausted.

The lungs, with its larynx, trachea and multitude of lobes and delicate membranes, fibers, sieves and valves, are a labyrinth equal to the Egyptian pyramid, and far more interesting for exploration.

The four intestinal cavities are generally considered distinct, tho continuous. The anterior cavity embraces the esophagus, cardia, stomach and pylorus. The central cavity, the gall intestine, or duodenum, the empty intestine, or jejunum,

the crooked intestine, or ilium, and the liver and pancreas. The posterior cavity includes the colon, the cecum, the rectum and the anus. Then we have the urinary cavity, comprising the urinary tube and the bladder.

Thus we find grouped, yet distinct, these various reservoirs and canals as the laboratories and waste-pipes of the system, with their numerous sacs of reserve force, pabulum and nourishment. All these are needed to make complete the transformation of food into living tissue. While they maintain their living powers and activities, and keep up the equilibrium between supply and waste, life is normal; unbalanced, there is disease; seriously interrupted, there is death.

Salivation From Amalgam.

EDITOR ITEMS:—It has been claimed that it is utterly impossible for an amalgam filling to salivate a person; now I had a patient two weeks ago who came to me with every indication of mercurial salivation, caused, as he thought, by a broken amalgam filling. A piece of the filling had broken off three days previous, and soon after his gums became extremely sore and puffed up, and a distinct blue line appeared on the margin of each gum. The patient was a physician and said he had taken nothing that would cause salivation.

I inserted another amalgam filling, and his mouth is now about well, he having treated it himself.

Now I should like the opinion of your readers as to the cause of this phenomenon.

DR. J. P. COLLINS.

Perry, Iowa.

EDITORIAL REMARKS.

If the insertion of the new amalgam could cure the trouble, how could the old amalgam have produced it? Certainly the old could not have been more active than the new.

A physician once had us sent for to remove an amalgam filling that, he said, was producing a fearful cancer. We found the cheek and tongue terribly swollen and ulcerated, with purulent matter almost filling the mouth; the drivling was excessive. It was difficult to find any approach to the tooth. After thoroughly rinsing the mouth with alkaline and antiseptic washes, we managed to get at the offending filling and found it protruding from the tooth in all directions. It was a very large filling, and the tooth was a mere shell. This had given way on all sides, but as the filling had been anchored in the roots, it stood firm. The physician was so thoroughly convinced that it was a cancer, produced by mercurial poisoning that, if the tooth and filling could have been reached for extraction, nothing else would have satisfied. But we were determined to convince them there was no cancer and no mercurial poisoning.

It was simply long continued and severe irritation from the ragged, jagged edges of the filling and the broken-down shell of a molar. With great labor, lasting half an hour each, for three settings, we managed to smooth off the edges in all parts. The washes did the rest of the cure, and thus this wonderful case of poisoning was at an end.

But amalgam can salivate just as surely as mercury can do it. It is astonishing more patients are not salivated by the use of amalgam in filling teeth.

Some time since a patient of a neighboring dentist suffered a terrible death from mercury in a single amalgam filling. In another case, had we not opportunely removed the amalgam-filled tooth and much of the contiguous membrane and bone, the patient must have died.

Is it possible that anyone is so ignorant as not to know that quicksilver is a virulent poison?

To see some dentists mix amalgam, one would suppose they regarded an excess of quicksilver as of no consequence; and when they press it out in condensing the plug, they are as apt to carelessly allow it to fall in the mouth, or hide under contiguous membrane, as they are to carefully remove it from the mouth.

The man we speak of, whom the dentist killed, had enough amalgam (too surcharged with mercury to become hard) crammed through the cavity of a molar into the antrum to fill three such tooth cavities he attempted to fill. And there, as free mercury, it set up an irritation, then inflammation and ulceration, and then putrefaction, till gangrene brought death.

"Did you not suspect that you were putting into the cavity of that molar more than it could possibly hold?" said I to the dentist.

"Yes," was his response, "I was dumbfounded at the amount it took, and could not imagine where it went to."

"And why did you use such an excess of mercury?"

"So as to thoroughly fill the roots; but I see now I used altogether too much to allow the amalgam to harden."

In the other case we refer to, the amalgam was crumbly and soft when we removed the tooth, tho this was six weeks after it had been filled; and much of this amalgam slush had been left beneath the gum on the outside of the tooth-cavity. Of course, much of the surrounding flesh and bone, all fetid and rotten, was removed with the tooth.

"Well, then, we had better abandon amalgam," says one.

If we must abandon every thing that can be abused, we shall have little left. Then, again, this contact with the mucous membrane of the most virulent poisons is not always contagious. It is surprising to see how much resistance to such attacks there is when this membrane is healthy; but when it is not, then comes the disaster. Besides, there is no necessity for such blunders. There is hardly a tyro using amalgam that does not know better than to do as we have referred to, if they *think* for a single moment.

Causes of Decay.

WE have much discussion on this subject, and yet it needs light.

Great prominence is placed on the fermentation of decomposing food on and between the teeth, and we cannot be too persistent in demanding of our patients cleanliness.

But back[illegible]ent acidity from decaying food, there is no doubt a cause for caries to be found in a want of tone in the general system.

Then, again, who has not marked the peculiar ravages on the teeth through those local or general diseases that are specially prolific of acidity, and of those which derange the condition of the salivary glands and the mucous follicles? Not only do we find caries from such *diseases*, but we are also brought in contact with comparatively normal conditions that have their injurious effect on the teeth. Who has not observed in his own appetites, at times, a longing for acids that spoke loudly of a systemic preponderance of alkalinity; and, at other times, of a singular demand for earths and other alkalines that reminded him of a preponderance of acidity? thus, both called for a balance that should be an equipoise between acidity and alkalinity. And we must bear in mind that caries may result from the preponderance of either.

Pregnancy and lactation are conditions, not of disease, nor do they generally produce disease, nor even an abnormal condition, and very many persons are even relieved by these from previous serious complications of disease, tho these may produce caries of the teeth.

Also any organ of our body that is long unused is gradually reduced to weakness and inefficiency, if not to disease and death. Activity is the normal condition of every member and muscle and tissue and fiber; yes, and of the very cells and nuclei and most minute centres of life. The backwoods man and his children that are vigorous and active are vigorous eaters, and have vigorous digestion and frames, with every organ strong and healthy; while the pampered children of sedentary habits,—all living on pampering, concentrated, unwholesome food, specially prepared to

swallow without the use of the teeth, and half of it in slops,—have decayed teeth, more and more frail with each generation.

This reminds us that the back of all causes arising from derangements of function or condition of organ or system, we must look for a congenital cause that is sometimes quite dominant. "The fathers have eaten some grapes and the children's teeth are set on edge." As parents, so children, only more so. For instance, we cannot live, and move, and have our being in a forced, abormal, hot-house state, falsely called civilization, without suffering from its exhausting stimulation, its feverish rush, its artificial appetites, and its alternate extremes of passions and laxities. Weakness, disease and premature death are inevitable, both for parents and children. And as this is the tendency of the whole body, so is it of individual organs, and increasingly so as generation follows generation. Were it not for the healthy blood, the vigorous lives, and the strong common sense of the rugged yeomanry constantly pouring into our centers of haste, waste, and destruction, these places would be soon depopulated, So, also, were it not for the strong, healthy, sensible lives that affiliate in matrimony with those thus weakened, the teeth of this generation would be worse than they are, and the teeth of coming generations still worse; for, as we have intimated, much of the frailty and disease of our teeth are laid in the embryo, to be developed in all stages of after life.

"Heaven's Cordial."

WE published this recipe some years ago. Dr. J. N. Harris, of Rushville, Ind., having used it for a long time with much success, and having lost the recipe, sent for it six months since; but we could not find it. To-day he writes us:

"Praise God from whom all blessings flow. I have found the recipe. It comes in the directions for using your oxyphosphate, to cure toothache. It is the best, surest and most immediate relief of toothache I ever used. It never fails; and in after pain, from extraction, it is infallible. I shall never be without it."

It will also be found excellent for rheumatic pain, or any pain in the muscles or glands that can be reached by an external application.

It is as follows:

Alcohol (best), 1 oz., chloroform, 2 ozs., sulphuric ether ¾ oz., gum camphor, ½ oz., laudanum, ⅛ oz., oil cloves, ½ dr. As soon as the pain ceases fill the cavity with cotton moistened with the carbolic acid and oil of cloves. Put on this cotton sandarac varnish, and allow it to remain twenty or thirty minutes, when the tooth may be filled with oxyphosphate over a cap of freshly varnished paper.

Kind Words.

SOME can say kind words on occasion, and for occasion, who are anything but kind in their ordinary behavior and intercourse. When we believe kind words are spoken for mere flattery, or for selfish ends, they are repulsive; but if they are the habit of the person, coming from the mouth because spontaneous from a warm, genial nature, they are as "oil poured forth," perfuming the whole atmosphere.

Some men are so stern and cold, kind words look out of place; we expect rough, harsh things, and wonder at anything else. This is a great fault.

Some speak and act kindly to their family, and in their social relations, but, as soon as they enter their business, they are gruff, seemingly thinking it undignified to condescend to any familiarity, or to reciprocate good feeling or good cheer with subordinates, or even with customers. He that cannot bring a genial nature, pleasing address, and kind words into a business had better be out of it. And these must be a part of his stock in trade,—genuine in their character, omnipresent in their intimacy, and abundant in their supply.

Splicing the Engine Cord.—Dr. Geo. A. Maxfield, Holyoke, Mass., shows us by a sample a splice that would be hard to beat, either for ingenuity or for strength, smoothness and durability. Dental tradesmen and dentists would do well to correspond with him.

Others are morose, selfish and exacting at home, but use pleasant, polite, honeyed words in their business. Of course, these are always suspected of having a sinister motive.

But with the true Christian gentleman and lady, kind words will flow from the lips without effort or premeditation, because this grace of the lips will be the expression of the sweetness of the nature, the affection of the heart, and the love of their life.

In reproof and well-merited censure, it is hard to think that kind words are in place; and yet it is a question if we do not gain even then by showing kindness of heart, speech and manners. There should be firmness and plainness, and, if necessary, pointed rebuke. But can we not conceive of kindness in rebuke, gentleness in plainness, and love in firmness?

The mission of kind words is greater and more important than generally supposed. Their sweetness is grace and pleasure to ourselves, and their influence on others is incalculable. They are the best kind of an introduction to those we would make our friends; they are a sure passport into good society, and they make us a home anywhere.

In our professional life as dentists, they are as attractive as sweets to the bees; as controlling as the trainer's whispers of command to the horse, and as winning as love to the maiden. They soothe the affrighted or nervous or despondent patient, and there is nothing like kind words with a kind heart behind them to give fortitude in suffering. In fact, one without kind words born in his very nature, and blossoming out as the fragrant flowers of the life, has no place in the dental profession.

Not only are they of princely value with our patients, but in our general intercourse with one another, and with the general community. Kind words win many a friend; overcome many a prejudice, and open the door to many a genial and useful household. They remove friction, allay anger and cover blemishes; they excuse awkwardness, palliate faults and hide weaknesses; they draw to us our enemies, bury misunderstandings and bring concord, congeniality and mutual advantage.

Few realize how largely we, and the whole world, are dependent on kind words for happiness. They prevent many a quarrel, overcome many an ill nature and make lovable many a sour character. As a sweet-meat they alleviate many a heartburn; as a medicine they cure many an obstinate patient; and as an elixir they actually prolong life. To unite friends, they are better than court-plaster; to heal sores they make the wonderful twolip salve; and to transform poverty's cottage into a king's palace, they are more precious than gold.

Let us make use of them; but to make them efficient they must represent our nature.

A very interesting four year old tot who had seen her father's face poulticed for the toothache, and had heard her mother implore him to go to a dentist and have the troublesome tooth extracted, was deeply impressed with the performance. One day, while her mother was entertaining company in the parlor, she procured some prepared chalk from the dressing case, and, reducing it to a fine powder, soon had it moistened to the consistency of a poultice, which she applied to her doll's face in pure orthodox fashion—utilizing a white silk handkerchief, belonging to her father, to hold the poultice in position. Then putting the baby into its dolly carriage, she went to the sidewalk, where she was joined by a neighbor's child of her own age, who, on seeing the doll's face bundled up, said:

"Why, 'Izzy, 'ot ails oo 'ittle baby; its face is growed up so big?"

"Oh, doodness, it is got awful toofsache," said she, takiug the doll in her arms and fondling it tenderly; "it twi'd and twi'd and twi'd all night long, and I got most 'stracted; sometimes I wish it had no toofies at all. I'm goin' to papa's dentist for him to give it some medicine."—*The Practical Dentist.*

Miscellaneous.

How Stars are Made.

GARRET P. SERVISS.

ONE of the strangest discoveries made by Sir William Herschel was that of "fire mist" in the heavens. With his giant telescopes he could discern, besides unknown planets, stars, and nebulæ, certain faintly luminous spots in the sky, caused, apparently, by the existence of scattered nebulous matter. This mysterious appearance seems now, under Mr. Lockyer's new meteoritic theory of the constitution of the celestial bodies, to range itself quite naturally in the regular sequence of phenomena by which we are able to trace the life history of the universe. But it is only fair to recall the fact that Herschel himself assigned to the nebulous mists of celestial space a place in the develepment of the material creation precisely like that which they occupy in the new hypothesis. Only, Herschel dealt with a supposed self-luminous substances of a highly attenuated nature, instead of with swarms of clashing meteors or meteoritic dust. According to either theory, however, we find in those glimmering clouds of space one of the earliest forms in which the great celestial bodies make their appearance—forms no more resembling the blazing suns or the encrusted planets ultimately to be developed out of them than an acorn resembles an oak, but representing a stage of creation as far transcending in remoteness of time the first geological period of a body like the earth as that surpasses in the ratio of antiquity the records of Adam's career in Eden.

In the *Nineteenth Century* for November, Mr. Lockyer has published, under the caption adopted for this article, what is perhaps the best popular statement he has yet made of his meteoritic theory. It is a theory that has not been accepted by all astronomers, and in some of its aspects has been sharply contested, but it supplies an ordinary account of phenomena that have not been so well linked together in any other way, and in many respects it is a decided advance upon the old nebular theory of our origin.

The earth is journeying through space in two ways. First, it is circling around the sun, going more than a million and a half of miles in a day. But the sun itself is in motion, flying at least half a million miles in a day in a direction not quite at right angles to that in which the earth travels, and the earth has to accompany the sun. In consequence our planet is really gyrating through space in great spiral sweeps around the sun, and so advances from the southern toward the northern part of the firmament. If the atmosphere were renewed every day, we should be constantly breathing the air of new regions. And, in fact, there is one way in which we do come in contact with the contents of the unknown parts of space into which we are hourly advancing, although we may be unconscious of it. That is by the fall of meteoritic matter upon the earth. Taking no account of the ether, space is no more absolutely empty than the air of a room is perfectly clear of impurities. As the air is filled with floating dust, so interstellar space abounds with dust of a different kind—the scraps of the unfinished universe. As the earth speeds along, this dust of space continually falls upon it, the larger particles catching fire from friction as they rush into the atmosphere, and thus appearing as falling stars or meteors; the finer grades simply sifting down through the air, and making their snows of presence visible on the mountain peaks and in the ooze of the ocean's bottom. Occasionally a meteorite, more massive than its fellows, survives the fiery passage through the atmosphere and falls a blazing mass upon the earth.

It was a striking idea of Mr. Lockyer's to take one of these messengers from outer space and submit it to the analyzing powers of the spectroscope. Why might not this tiny inhabitant of the heavens fallen upon the earth have some secrets to reveal concerning the constitution of the other bodies from the midst of which it came? Upon the result of this experiment Mr. Lockyer founded his theory. The result of the experiment in brief was that when a meteorite was reduced to dust, and that dust was submitted in the laboratory to a low temperature, and the light emitted by it was examined with the spectroscope, its spectrum was found to be identical with that given by the faintly glowing nebulæ seen in the heavens. With higher temperature the meteoritic matter gave spectra agreeing with those of many of the stars. The resulting theory is that the nebulæ are clouds of meteorites or meteoritic dust heated, and so caused to glow, by their mutual collisions, and that many stars are not globes of gaseous matter like our sun, but meteoritic swarms so compacted that a fierce light is caused to blaze from them by the constant and violent clashing of the meteorites. With this idea in mind we can then range the nebulæ and the stars into a continuous series, according to the degree of density that the meteoritic swarms have attained, and the consequent intensity with which

heat and light are developed in them. Their varying spectra give a clew to their condition in these respects.

Beginning as far back as we can go, we find that the wonderful power of photography takes us a step beyond the utmost reach of the most powerful telescopes. There are nebulous objects in the heavens fainter even than those mysterious clouds of fire mist that the enormous reflectors of Herschel revealed to his astonished eyes. The forms of nebulæ that the most gigantic telescopes cannot reveal to the eye have already impressed themselves upon photographic plates exposed to their strange radiations. The reason they can thus be discovered even when too faint too make any impression upon the eye is because the photographic plate possesses the property of accumulating the effect of radiations falling upon it, which the human retina cannot do. The longer the plate is exposed the more it detects. According to the theory we are considering, these photographic nebulæ must be regarded as swarms whose component meteorites are so scattered that collisions are comparatively rare, and the consequent radiation is so slight as to be unable to impress the eye with a sense of light.

Next come the nebulous mists of Herschel, in which the condensation has progressed a step further and the meteorites are firing up with the heat, of more frequent and more violent collision; then the various classes of brighter nebulæ, wherein the condensing process has become more pronounced; next star-like swarms so compacted that as seen across the enormous spaces separating them from us they cannot, by the eye alone, be distinguished from stars resembling the sun. The stars divide themselves into several classes, each successive class being characterized by a spectrum which indicates that it is denser and hotter than the preceding class, until we reach the hottest stars of all, in which the meteorites, rushing and swirling and grinding ever closer and closer in the resistless embrace of gravitation, have, in consequence of the resulting heat, been reduced to vapor.

It is believed that our sun has not only reached but even passed this stage, for, as we shall see, there is a downward as well as an upward course in this strange history. Following the hot and gaseous stars, we find another series in which the evidence is of decreasing energy and of gradual extinction. The heat is radiated away into space, the outside of the star cools first, a cloud-like shell surrounds it and slowly extinguishes its radiation, and the whole character of its spectrum changes, it glares with a red light, showing the absorptive influence of the gases that are, so to speak, smothering it, and finally it shines no longer. According to Mr. Lockyer the fate that awaits our sun (and it has already progressed half way down the shady side of solar existence) is to be put out by an excess of carbon vapors in its atmosphere. But after a star has thus been extinguished, the process of cooling and condensing goes on within its core until it is changed to a solid globe of metals and minerals like the earth and the moon. Such is the life of a star.—*N. Y. Sun.*

A Local Anesthetic.

WE are sorry to find that there is a growing tendency to make use of nostrums put on the market, about which little or nothing is known of their composition or action. In America, dentists have been flooded with "Local Anesthetics," warranted to do anything and everything under the sun. Of course the majority of all such things are mere trash, and sometimes worse, for they may contain ingredients which are positively injurious. In this country there seems to be some sort of demand for secret drugs in the treatment of aching or pulpless teeth, as if we had not already a perfect legion of remedies of which we know their specific action. The demand must exist or the supply would not be advertised. What we protest against is the employment of any drug of which we cannot trace its action, and the encouragement of merely empirical and ignorant treatment. Perhaps no drug of the kind referred to has wormed its way into medical favor with greater persistency than chlorodyne. Everyone pretended to know exactly what it contained, and therefore had the less hesitation in using it. And, lo! now either it or its ghost appears in the official British Pharmacopœia, under the high-sounding title of "tinctura chloroformi et morphinæ." The following is the formula, long enough to please the most fastidious:

Chloroform,	1 fluid ounce.
Ether,	2 fluid drachms.
Rectified Spirit,	1 fluid ounce.
Hydrochlorate of Morphine,	8 grains.
Diluted Hydrocyanic Acid,	½ fluid ounce.
Oil of Peppermint,	4 minims.
Liquid Extract of Liquorice,	1 fluid ounce.
Treacle,	1 fluid ounce.
Syrup,	A sufficiency.

—*The Dental Record.*

The Standard Coins of the World.

THE Director of the Mint has estimated, and the Secretary of the Treasury proclaimed, the values of the standard coins of the nations of the world, to be followed in determining the values of all foreign merchandise imported on or after January 1, 1890. The following table exhibits the present values of foreign coins.

Coins.	Jan. 1, 1889.	Jan. 1, 1890.
Florin, of Austria	33.6 cents.	34.5 cents.
Silver dollar, of Bolivia, Colombia, Ecuador, Peru, and the Central American States,	68.0 "	69.8 "
Bolivar, of Venezeula	13.6 "	14.0 "
Rupee, of India	32.3 "	33.3 "
Silver Yen (or dollar) of Japan	73.4 "	75.2 "
Dollar (or peso) of Mexico	73.9 "	75.8 "
Rouble, of Russia	54.4 "	55.8 "
Mahbul, of Tripoli	61.4 "	62.9 "

The following coins have, for the first time, been included in the annual circular of values: $2 gold piece, of Newfoundland, value $2.02.7; Shanghai tael, of China, value $1.03; Hackwan (customs) tael, of China, value $1.14.8.

The following shows the values of standard foreign coins, which have not been changed from the value fixed in the Secretary's circular of last January. Argentine Republic, peso, 96.5 cents; Belgium, francs, 19.3 cents; Brazil, milreis, 54.6 cents; British Possessions, North America (except Newfoundland) dollar, $1.00; Chili, peso, 91.2 cents; Cuba, peso, 92.6 cents; Denmark, crown, 26.8 cents; Egypt, pound (100 piastres), $4.94.3; France, franc, 19.3 cents; German Empire, mark, 23.8 cents; Great Britain, pound sterling, 4.86.6½; Greece, drachma, 19.3 cents; Hayti, gourde, 96.5 cents; Italy, lira, 19.3 cents; Liberia, dollar, $1.00; Netherlands, florin, 40.2 cents; Norway, crown, 26.8 cents; Portugal, milreis, $1.08; Spain, peseta, 19.3 cents; Sweden, crown, 26.8 cents; Switzerland, franc, 19.3 cents; Turkey, piastre, 4.4 cents. The Secretary's forthcoming circular of January 1, 1890, marks an important change in the values of silver coins, which are higher than for the preceding year, whereas since 1879 the values of foreign silver coins have each year been estimated lower than for the preceding year.

Washington, Dec. 27.

Teeth of Fish.—One class of extinct fishes, the *Dendrodont*, or "tree-toothed," are remarkable for the beautiful convolutions of structure which their sections present. The fish world exhibit teeth of a variety of shapes, the conical being the predominant. As to number, they range from none to countless numbers. Sometimes their teeth are slender, sharp-pointed, and so numerous and closely aggregated, "as to resemble the plush or pile of velvet"—all the teeth of the perch are of this kind; they are called "villiform." When equally fine and numerous, but longer, they are named "ciliform;" and rather stronger, are "setiform," bristle-like. The pike presents specimens of rasping teeth; and in the pharyngeal bones of the wrasse—a common aquarium fish—"hemispherical teeth are so numerous, and spread over so broad a surface, as to resemble a pavement.

PROF. OWEN.

Speed and Power of Birds.—In an article in the *Forum* Prof. R. H. Thurston says: The vulture is said to fly, at times, at the rate of above 100 miles an hour; the wild goose and the swallow, in their migrations, make 90 miles an hour; and the carrier pigeon has certainly flown long distances at rates of speed ranging from 60 up to 80 miles an hour, and for many hours together. The common crow ordinarily lounges across country at the rate of 25 miles an hour, the speed of a railway train.

The Value of Vaccination.—"After moving from this place, ten days passed before we reached another plantation, during which time we lost more men than we had lost between Banalya and Ugarrowwa's. The small pox broke out among the Manyema and their followers, and the mortality was terrible. Our Zanzibaris escaped this pest, however, owing to the vaccination they had undergone on board the Madura." The foregoing is an extract from the interesting letter of Mr. Stanley, published this week, and we commend it to the notice of the anti-vaccinationists.—*Lancet.*

Mechanical execution of any design depends on a nice conception of that design in its minute proportions and detail. So he who best understands the design, structure and intimate relations of the tissues of teeth, will be best able to intelligently address his efforts to their conservation or restoration.—*Wm. H. Atkinson.*

The Production of Pumice Stone.

WE often hear it remarked, and particularly after an eruption of a volcano, that pumice stone ought then to be plentiful and cheap, as quantities must have been ejected during the volcanic disturbance. As a matter of fact, however, none of the white stone in general use is obtained from active volcanoes. It is true, Vesuvius has ejected pumice stone, for at the time when Pompeii was destroyed large quantities fell over the doomed city, but that pumice appears to have been only of diminutive size, and is gray in color, and of the same inferior character as that found to the north of Naples. It is also probable that volcanoes situate in the southern seas emit pumice, for accounts are published of vessels sailing through quantities stretching for miles on the surface of the water. This, presumably, is similar to that taken from the sea near the Italian shores. It is small in size, and in the form of pebbles, having been rounded by the action of the water.

But we are not indebted to ejections from volcanoes for our supply of stone. It is to actual deposits of the article discovered in one or two quarters of the globe, the best of which is at present to be found in the island of Lipari, situate in the Tyrrhenian Sea. The island is of no general interest, and is scarcely visited by any but Italians engaged in trading in its productions, such as currants, capers, wine and pumice. It is mountainous in character, and consists of tuffs and lavas and of highly siliceous volcanic products. The district where the stone is found is called Campo Bianco or Monte Petalo (1,500 feet above the level of the sea). It is an interesting ride there upward from the town. The views obtained of land and sea during the ascent are very fine, and the effect produced by the first sight of the pumice deposit is curious, for, after riding a considerable distance, partly along precipitous paths, sufficiently dangerous to be interesting, and partly through vineyards and over grassy plains, one almost suddenly comes on a seemingly snow-clad narrow valley inclosed by hills, also quite white, and the whole glaringly bright on a sunny day, such as can be experienced in this southern latitude. Into these hills workmen are ceaselessly digging deep burrows, working within by candle light. In their excavations they come across many lumps of pumice stone, which are placed in baskets, subsequently being conveyed along the valley to the seashore, where small boats are loaded and sailed to the seaport near by, where the stone is sorted, packed and shipt to distant parts, either *via* Messina or Leghorn.—*Scientific American.*

Money Spent for Intoxicants.—The actual amount of malt liquors consumed in 1888 was 767,587,056 gallons. This includes not quite 3,000,000 gallons of imported beer and ale. The manufacturer's price to the retailer is above rather than below 20 cents per gallon. At 20 cents the cost to the dealers would be $153,517,411. The retailers get an average of 60 cents per gallon, which makes the cost to the consumers $460,522,233, which the American people spend annually for malt liquor, principally beer. The most careful estimate puts the cost of wine to the consumer at $72,670,136, and of distilled spirits $379,226,860. This gives us a grand total of $912,449,129, nearly one billion dollars spent annually for liquor by the people of the United States. How few people realize the enormous expense the use of liquor entails on the people. Aside from the tax imposed by the General Government, the local tax on the trade is not five per cent of the cost. The cost to Ohio is about $60,000,000 per annum; the local tax is $2,250,000, which is but a trifle over four per cent.—*Sandusky (Ohio) Register.*

How Long to Sleep.—Up to the fifteenth year most young people require ten hours, and till the twentieth year nine hours. After that age every one finds out how much is required, though, as a general rule, at least six to eight hours are necessary. Eight hours' sleep will prevent more nervous derangements in women than any medicine can cure. During growth there must be ample sleep if the brain is to develop to its full extent; and the more nervous, excitable or precocious a child is, the longer sleep should it get, if its intellectual progress is not to come to a premature standstill, or its life cut short at an early age.—*Exchange.*

A Small box filled with lime and placed on a shelf in the pantry or closet will absorb dampness and keep the air in the closet dry and sweet.

Excessive cigarette smoking is held responsible for yet another death. The latest victim of the habit, a school boy named Walter Fletcher, has died in Louisville. "He was the brightest boy in his class, but about a year ago became an excessive smoker of cigarettes, sometimes using fifty to sixty in a day. Recently he was stricken with heart disease, directly brought on by smoking."

Porcelain Teeth.

FOR twenty-five years the dental profession have had the merits of dollar teeth presented to their notice in competition with other makes of claimed superiority for which they paid more than double this price.

When the Wilmington Tooth was first introduced, the price fixed was such as afforded the manufacturer a fair margin of profit. The great expense incident to the manufacture of porcelain teeth is *platinum*. The cost of this precious metal has been steadily increasing in consequence of increasing demands for it, with no new sources of supply developing.

From the time the Wilmington Tooth was introduced up to September 1, 1889, platinum had increased in value over 80 per cent, and, in consequence, the margin of profit for the manufacturers of these teeth was more than consumed, and they were compelled to make an advance in price, and issued a notice accordingly. Since September 1, there has been continued and very rapid advance in wholesale price of platinum, the present quotations being 50 per cent above the prices of September 1, in quantities of 1,000 ounces, or an increase of nearly 200 per cent as compared with twenty-five years ago ; since which time, and up to September 1, the price of teeth remained fixed and uniform, the manufacturers gradually sacrificing profit for benefit of their patrons.

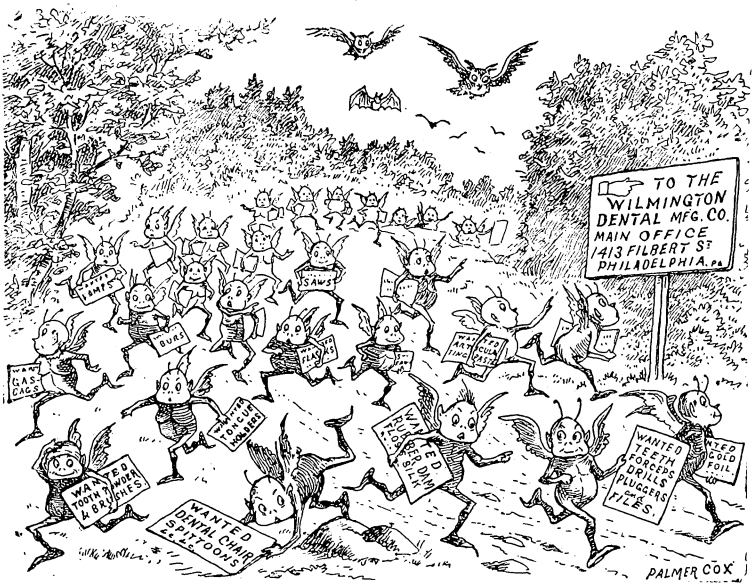
The International Dental Journal, in July, 1889, was the first to sound a note of warning to the profession, when, in an editorial, was set forth some very interesting facts pertaining to the platinum question, and concluding the article in the following prophetic language :—

"The increase in the price of metal can have only one result, and that is, to raise the price of teeth or drive the manufacturers out of business. This especially relates to the so-called cheap teeth, which have, during the past few years, been so much improved, some grades having reached that stage of perfection, that the price can be easily advanced and yet compete with the higher-priced teeth. Unless some means is found to substitute other metals or methods of manufacture, we very much fear that the dollar-tooth will become a thing of the past."

In determination of alternative whether to retire from business or advance the price of their product, The Wilmington Dental Manufacturing Company selected the latter course, and their patrons have nobly sustained their action.

It was hoped at the time the advance was made, that the precious metal would go no higher, but in such expectations the manufacturers were doomed to disappointment, as above comparisons indicate ; and unless more favorable conditions prevail, the consumer will again be called upon to meet a corresponding advance in the price of the manufactured product, as the infallible law must prevail, that the price of a manufactured article is governed by cost of production in raw material and labor expended.

A manufacturer fortunate enough to have in stock an extraordinary quantity of the necessary raw material, platinum, at rates of six months ago, is to be congratulated in his position, as he can continue to dispose of his teeth, for a time, at old prices without suffering loss ; but such conditions cannot long continue unless there be material change in the controlling influences, and we ask the reader to analyze the facts and conditions on the peculiarly anomalous circumstances that have been conspicuous in the tooth trade during the past few weeks before passing judgment. A reduction in the price of his product, by one of the manufacturers, has been made arbitrarily, and, in the nature of things, cannot be permanent.



NOW Dentists knowing where to buy
Of Dental wares the best supply,
Into their service press the bright
And nimble footed Elves of night,
Who with their orders haste to show
THE DENTAL MANUFACTURING CO.,
Of WILMINGTON, what Dentists need
While in their practice they proceed,
They know the scientific way
They handle Silex, Feld-Spar and Clay,
Produce the Teeth of finest grade
Now offered to the Dental Trade,
Besides they keep on hand a store
Of Instruments to Scrape and Bore,
To Pull in place, or Separate,
To Polish, File and Excavate,
With Rubber Dam, Gold Foil and all
That in the line of business fall,
You Dentists who have failed to find
The messengers of spirit kind,
Let Uncle Sam your letters bear,
And orders will be filled with care.